First Copy

PUBLIC LIBRARY

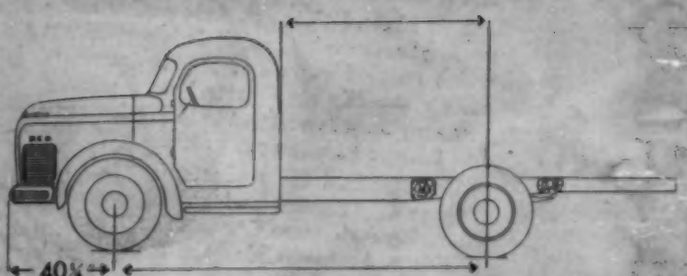
Fleet Owner

VOLUME 22
NO. 1

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF ALL AUTOMOTIVE FLEETS

JANUARY
1939

REO's *Sensational* NEW TRUCK



60" BACK OF CAB TO CENTER OF REAR AXLE ON 120" WHEELBASE!
84" BACK OF CAB TO CENTER OF REAR AXLE ON 145" WHEELBASE!
05" BACK OF CAB TO CENTER OF REAR AXLE ON 165" WHEELBASE!
19" BACK OF CAB TO CENTER OF REAR AXLE ON 200" WHEELBASE!

THE new 1939 Reo is the *greatest* truck in Reo history! It was the most talked-about truck at the N. Y. Show. Five of the new, outstanding features are: (1) the greatly increased load space; (2) the advance styling—dazzling beauty; (3) the improved, higher torque, "Gold Crown" engine; (4) the surprising accessibility; (5) the complete interchangeability of transmissions, axles, engines, etc., so that any Reo truck can be "custom built" economically to meet individual trucking requirements. There are many other advanced features, all of which combine to make Reo, by all odds, *1939's best truck* buy!

ADVANCED STYLING
★
MORE LOADING SPACE
★
"GOLD CROWN" ENGINE
with More Torque
with Greater Economy
with Longer Life
★
COMPLETE INTERCHANGEABILITY
of mechanical units throughout entire line

REO

REO MOTOR CAR COMPANY
LANSING, MICH.

PACKING COMPANY FLEET ADDS 1.1 MILES PER GALLON TO FLEET AVERAGE

• IT'S EASY to lean down a carburetor, and increase gasoline mileage. But that may merely result in loss of power and burned valves, increasing maintenance expense far more than the gasoline saving.

Standard Oil Automotive Engineers are trying to reduce *total* operating costs. Sometimes it means readjustment of a carburetor float level. Sometimes it's refacing a set of distributor points. Sometimes it's a new condenser. But in every case it involves a careful check of all of these things and many others to secure good overall performance, full power and low maintenance.

This kind of *thorough* Automotive Engineering Service solved an oil sludging problem which reduced valve and ring maintenance costs materially on a central state packing company fleet, in addition to increasing gasoline mileage 1.1 miles per gallon.

Use Standard Oil products. Get this free Engineering Service and watch *your* fleet operating costs come down. Write 910 South Michigan Avenue, Chicago, Illinois. Ask to have the Automotive Engineer nearest your garage call and explain fully just what he does.

Standard Automotive Engineer and garage superintendent inspecting carburetor float. Close cooperation with shop men in their operating problems insures the lasting value of Standard's Automotive Engineering Service.

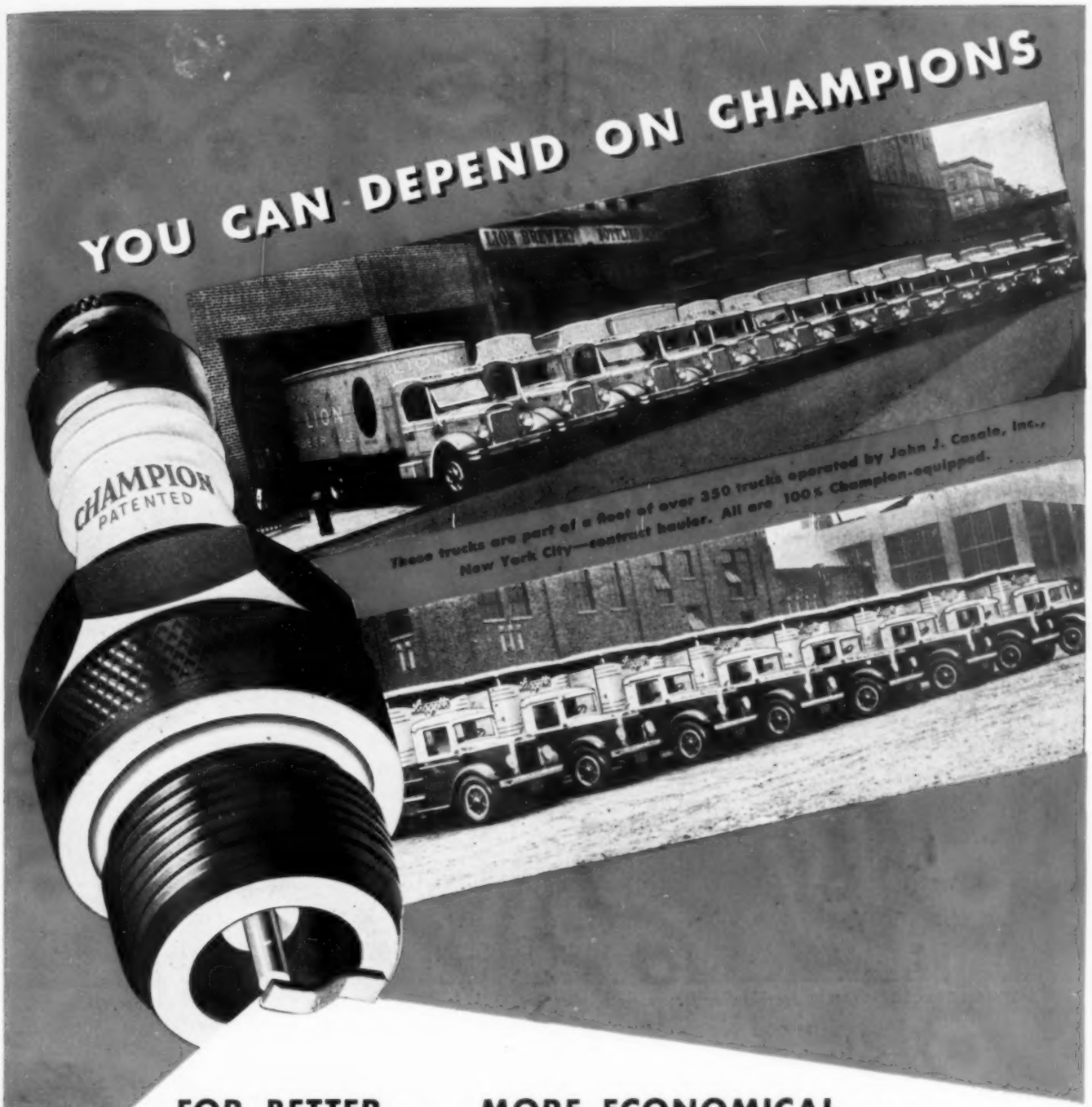
Copr. 1939, Standard Oil Co. (Ind.)

STANDARD OIL COMPANY (INDIANA)

AUTOMOTIVE ENGINEERING SERVICE LOWERS MILEAGE COSTS

R v. 22-23 1939

YOU CAN DEPEND ON CHAMPIONS



These trucks are part of a fleet of over 350 trucks operated by John J. Casale, Inc., New York City—contract hauler. All are 100% Champion-equipped.

FOR BETTER . . . MORE ECONOMICAL . . . MORE DEPENDABLE ENGINE PERFORMANCE

In operating a fleet of trucks, buses or automobiles successfully, extreme care must be taken to watch every maintenance and operating cost. Gasoline and oil consumption must be watched closely—expensive engine repairs must be guarded against—roadside delays must be avoided—in short, all units must be kept running at all times, under all conditions and with the utmost economy.

To accomplish such a trouble-free operation, most successful fleet operators depend on Champion Spark Plugs. They have found after many years of experience that Champions, and only Champions, offer them the utmost in power, speed, dependability, and above all, economy.

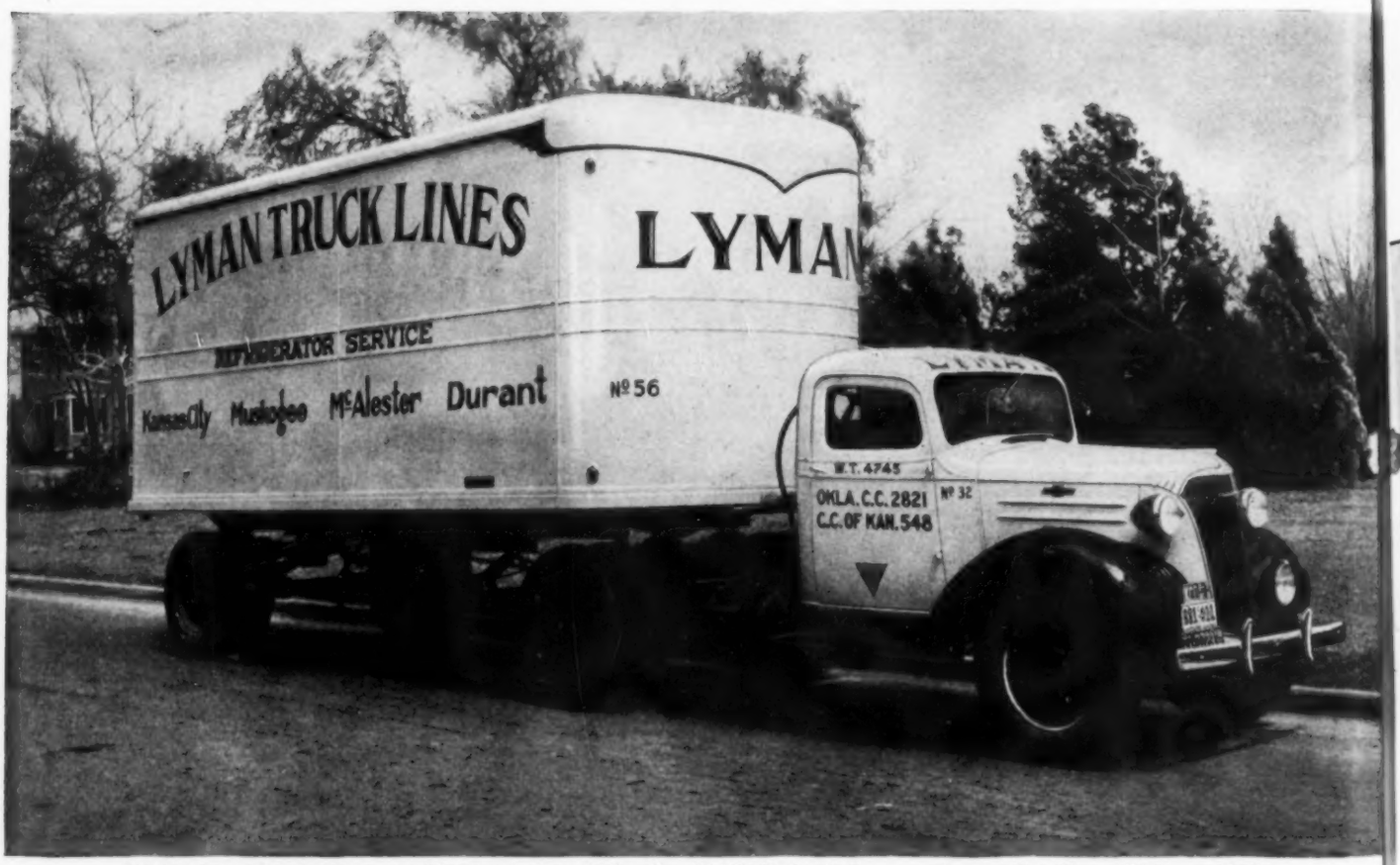
If you have a problem that is troubling you, call in our factory engineer for consultation. Many perplexing problems have been solved in this manner. Remember—insist on Champions because you can depend on them to make your fleet operation more successful.

THE SPARK PLUG CHAMPIONS USE

CHECK AND CLEAN SPARK PLUGS WHEN YOU CHANGE OIL

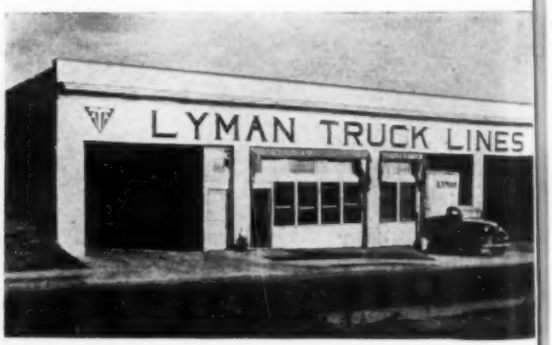
Tech

LONG-DISTANCE H



LYMAN TRACTOR-TRAILER *combination frequently handles 20,000 lb. loads between Kansas City, Mo. and Durant, Okla.*

THE LYMAN FLEET *consists of Chevrolet, G.M.C., and International Trucks. Practically all are tractor-trailer combinations.*



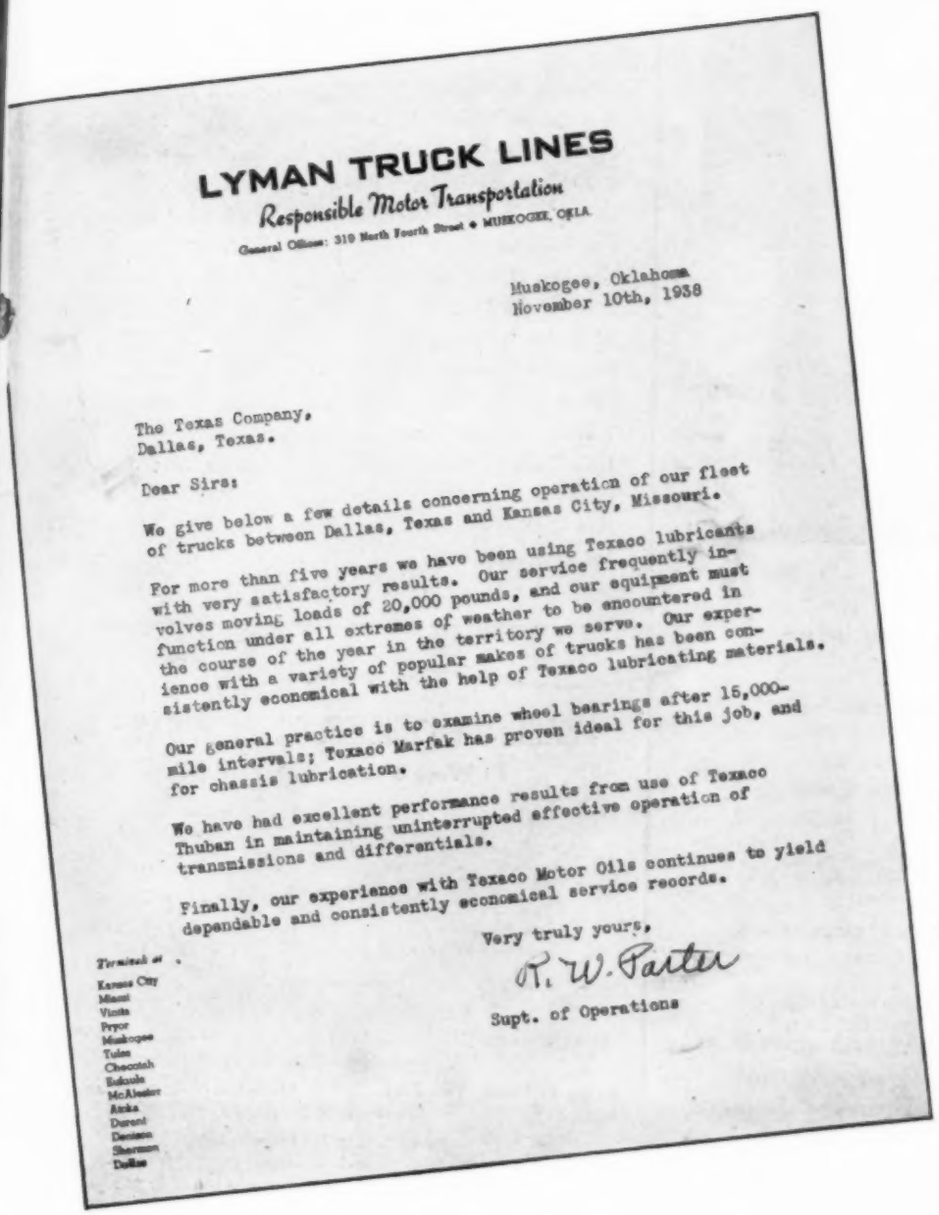
THE LYMAN GARAGE *at Muskogee, Okla., where Texaco Motor Oil, Texaco Marfak, and Texaco Thuban have been in use for more than 5 years.*

Texaco Dealers invite you to tune in The Texaco Star Theatre —a full hour of all-star entertainment—Every Wednesday Night—Columbia Network—9:00 E.S.T., 8:00 C.S.T., 7:00 M.S.T., 6:00 P.S.T.

TEXACO

C E HAULER

GETS RESULTS



LYMAN TRUCK LINES

Responsible Motor Transportation

General Offices: 319 North Fourth Street ◆ MUSKOGEE, OKLA.

Muskogee, Oklahoma
November 10th, 1938

The Texas Company,
Dallas, Texas.

Dear Sirs:

We give below a few details concerning operation of our fleet of trucks between Dallas, Texas and Kansas City, Missouri.

For more than five years we have been using Texaco lubricants with very satisfactory results. Our service frequently involves moving loads of 20,000 pounds, and our equipment must function under all extremes of weather to be encountered in the course of the year in the territory we serve. Our experience with a variety of popular makes of trucks has been consistently economical with the help of Texaco lubricating materials.

Our general practice is to examine wheel bearings after 15,000-mile intervals; Texaco Marfak has proven ideal for this job, and for chassis lubrication.

We have had excellent performance results from use of Texaco Thuban in maintaining uninterrupted effective operation of transmissions and differentials.

Finally, our experience with Texaco Motor Oils continues to yield dependable and consistently economical service records.

Very truly yours,

R. W. Porter

Supt. of Operations

Terminals at
Kansas City
Miami
Vinita
Pryor
Muskogee
Tulsa
Checotah
Eufaula
McAlester
Atoka
Durant
Denison
Sherman
Dallas

READ WHAT Lyman Truck Lines' Superintendent of Operations says . . . after 5 years reliance on Texaco Lubricants.

You, too, can duplicate Mr. Porter's experience with Texaco. You begin by calling in a Texaco automotive engineer who will help you select and apply the correct lubricant for each specific purpose. To order, phone the nearest of 2186 Texaco warehouses, or write direct to:

The Texas Company, 135 East 42nd Street, New York City.

TEXACO

REG. T.M.

TRUCK LUBRICANTS

36 PAGES OF CLEANING KINKS FREE!

FLEET OWNERS!

Write for This NEW Booklet→

It Tells . . . .

How to clean greasy, mucky parts before repair.

•

How to recondition dirty radiators and clogged cooling systems.

•

How to remove sludge from motors without tearing down.

•

How to save money on floor cleaning, steam cleaning, etc.

•

AND how to do dozens of other cleaning jobs.

•

There's no obligation. But write today for your copy! You will like the specific, helpful, money-saving data this booklet will give you.

Manufactured only by

OAKITE PRODUCTS, INC., 52G Thames St., NEW YORK, N. Y.

Branch Offices and Representatives in all Principal Cities of the U. S.

OAKITE *Certified* CLEANING

MATERIALS & METHODS FOR EVERY CLEANING REQUIREMENT

Charter CCA Member

FLEET OWNER

Published Monthly in the interests of Automotive Fleet Owners, who Operate or Direct their own Service, and devoted to the Better Operation and Maintenance of Truck, Trailer, Bus, Passenger Car, Taxicab and all Automotive Fleets.

VOL. 22 New York, January, 1939 No. 1

In This Issue:—

Stripping the Thread	Editorials	9
Safe Drivers Form "100,000-Mile Club"		14
Operating a Diesel Fleet	Anthony Pope	18
C. O. E. Helps Use of "Outlawed" Semi's		24
Our Own "Survey" on Tires	H. Clay Fischer	28
Reo Features Interchangeability for 1939		36
Cummins Offers Two New Small Diesels		38
News of the Truck Industry		40
Air-Brakes Developed for Light Trucks		42
Federal Announces 1939 Truck Models		44
Letters to the Editor		46
Trouble Shooters' Department		49
New Trade Literature (Free for the Asking)		50
Question-of-the-Month Club		51
New Products for Road and Shop		52
Index to Advertisers		65

Published Monthly By

FERGUSON PUBLISHING COMPANY, Inc.

90 West Street, New York, N. Y.

(Telephone: REctor 2-9179)

Hal H. Clark, President

A. L. Conley, Sec'y. and Treas. — **H. Clay Fischer**, Editor

L. W. Perkins, Vice-Pres., 3260 Elsmere Rd., Cleveland, Ohio
Telephone: Longacre 2718

Irving E. Hand, Vice-Pres., 224 S. Michigan Ave., Chicago, Ill.
Telephone: WEBster 7502

PACIFIC COAST REPRESENTATIVES:
E. D. Newfield, 574 Eddy St., San Francisco, Calif.—Tel. ORdway 2822
C. B. Clark, 3221 S. Figueroa St., Los Angeles, Calif.—Tel. Richmond 2271

CIRCULATION SUPERVISOR:
George C. Friedman

Subscription: $2.00 Yearly; Single Copies 25c

(Copyright 1938 by The Ferguson Publishing Company, Inc.)

Another user says

"the most valuable equipment in our maintenance dept."

Automotive General Corporation
DISTRIBUTORS
HUDSON AND TERRAPLANE MOTOR CARS
Dallas, Texas

October 1, 1938

Hall Manufacturing Company
Toledo, Ohio

Gentlemen:

I am the Service Executive for the Automotive General Corporation and Dean of Instructors for the Sweeney School of Engineering--automotive and Diesel engineering.

Sometime ago I purchased one of your valve seat grinders, which I consider one of the most valuable pieces of equipment in our maintenance department.

I have always been a fanatic on precision work. During the last several years I have been searching for a machine that would work with the precision of the Hall Valve Seat grinder. I have had demonstrated to me the following makes: [redacted] and many others.

My reason for not being satisfied with the other pieces of equipment was due to the grinding rock contacting the entire surface of the valve seat at one time. However, after having the Hall Valve Seat Grinder demonstrated to me I was thoroughly convinced that it was the one piece of equipment I had long been seeking.

Since this letter comes to you unsolicited you may feel free to use at will. I promise you here and now that I would not part with your grinder for four times its value.

Very truly yours,
AUTOMOTIVE GENERAL CORP.
C. E. Hunt
Service Manager

C.E.Hunt:MC

More than 20,000 ECCENTRIC Valve Seat Grinders have been produced and sold to factories and their service branches, car dealers and independent and fleet shops. From the standpoint of precision, finish, economy, business-getting and profit-making possibilities or the performance of the finished job, you too will find the HALL Model E-J ECCENTRIC Valve Seat Grinder THE MOST VALUABLE EQUIPMENT IN YOUR SHOP. Ask your Jobber or write the factory today for complete information.

THE HALL MANUFACTURING CO.
1620 Woodland Ave. Toledo, Ohio

HALL

ECCENTRIC VALVE SEAT GRINDERS

MILLIONS of loads of merchandise travel by truck each year—wheels on the road and a driver in the cab. And now that it's winter, the traveling is tough. Pleasure traffic heads for cover, but trucks—*and a man for every truck*—must stick to the job! Man and truck go all the way together, cross-town or cross-country—a close and intimate partnership that means a great deal for America.

Here's a fact that won't surprise truck drivers, but it may be news to you: *More heavy-duty trucks are purchased from INTERNATIONAL HARVESTER than from the next three manufacturers combined . . .* There are plenty of sound and practical reasons why the man in this man-and-truck partnership is so often teamed with an International. Hundreds of thousands of International drivers sum it up something like this: "It's a great go-getting truck that you can depend on from every angle and for any need, and that goes for the service too!"

So much for the partners on the highway. Of course the *owner* belongs in the picture too—and how! He's the BOSS. He buys the truck to start with, *and that means he and the driver feel the same way about it.*

INTERNATIONAL HARVESTER COMPANY
(INCORPORATED)
180 North Michigan Avenue Chicago, Illinois

INTERNATIONAL HARVESTER sells more heavy-duty trucks than the next three manufacturers combined.

INTERNATIONAL

Heavy-duty Internationals range from 2-ton up to big 6-wheelers . . . The same owner-driver satisfaction applies to Internationals of ½-ton to 1½-ton capacities. See any International Company-owned branch or dealer about *quality trucks* and *low-cost hauling.*

INTERNATIONAL TRUCKS

VOL. 22
NO. 1

FLEET OWNER

JANUARY
1939

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF TRUCK, TRAILER, BUS, TAXICAB, PASSENGER CAR, AND ALL AUTOMOTIVE FLEETS.

Stripping *the* Thread » »

(The Editor's Column)

CARRY 'EM IN STOCK

● In a Western city the driver of a city-owned vehicle needed to replace a spring in the door lock—a 5-cent article. He requisitioned it. . . . According to an *Associated Press* report, here's what happened: The 5-cent purchase passed the scrutiny of 18 city employees; it caused 21 bookkeeping operations before payment was made; the cost to the city, for bookkeeping operations alone, was 47 cents. . . . It took six weeks to get a voucher in payment from the city auditor. . . . The moral to this little story, of course, is to carry a stock of fast-moving items; however, don't let your stock get too big, as *Old Man Obsolescence* is likely to catch up with you. . . . If standardization of vehicles is practiced, as far as possible, your inventory job will be so much easier. . . . Although we are firm believers in standards and systems, there is a limit to everything. That's one reason why most firms carry petty-cash accounts, and permit decentralized operations of their fleets to make many sundry, "emergency" purchases. . . . Such items as tire-valves, valve-caps, fuses, stove-bolts, nails, screws, tacks and other "5 & 10" items fall into this category—but it's far better to carry a modest stock.

●

OBJECT LESSON

● A good reader-friend of ours sent in the accompanying photograph, with the idea of showing us what *used to* happen before he instituted a rigid program of preventive maintenance. . . . In the "old days," he tells us, axle-shaft failures like these were quite prevalent, especially on vehicles used in constant start-and-stop service. . . . One of the points in his preventive maintenance program included a periodic check-up of all wheel-hubs to make sure that wheel-bearings, stud-nuts, flanges, keys and axle-shaft nuts were kept *tight*. . . . The immediate result was almost a complete absence of such failures as are illustrated. . . . Since the institution of this preventive maintenance program, of course, certain old vehicles have been replaced by new ones. . . . Which leads us to a sneaky hunch that someone else should be credited, besides this fleet man—the manufacturers of the vehicles in question, whose untiring research efforts have produced better steels, better mountings and more satisfactory align-

ments. . . . Before this little item takes on the aspect of a "mutual admiration" plug, let's quit right here. . . . However, there's an object lesson concealed somewhere in it, and we're sure you'll have no difficulty in singling it out; and benefiting by it, too.

●

HOUSE-TO-HOUSE PLANNING

● The importance of scientific planning of truck bodies is emphasized in a rather novel explanation, which appeared originally in *The Pennzoiler*, a house-organ gotten out by The Pennzoil Company. . . . Relayed to us by a rather circuitous route, the story seems certainly worthy of repetition here. . . . We quote: "Parcel delivery men have to start and stop frequently; at each stop they will have to alight and after making the delivery enter the car again. A driver weighing 150 pounds who thus climbed into his truck 200 times a day would have lifted a weight of 30,000 pounds to the height of the cab floor. If the floor is two feet high, he has lifted at the end of the day, 60,000 foot-pounds, plus his load of packages. By lowering the floor one foot, he is saved a daily lift of 30,000 foot-pounds—a contribution to efficiency and physical fitness which necessarily results in a substantial dollars-and-cents savings. . . . Thus all the latest cars especially designed by the United Parcel Service for its own use are convenient of access for the driver, with wide steps on which it is almost impossible to stumble, a high cab in which the driver can stand upright, aluminum paint inside the body, so that he can see enough to pick the right package, and innumerable other conveniences, in addition to the mechanical accessibility required for rapid and effective servicing by the shop in each plant". . . . If your business calls for vehicles of the "house-to-house" delivery type, there's something truly worth thinking about, when planning your next lot of custom-built bodies.

●

H. Clay Fischer
Editor

●

The Editor's Column » »

(Continued from Page 9)

MOVING PICTURE FOR YOU

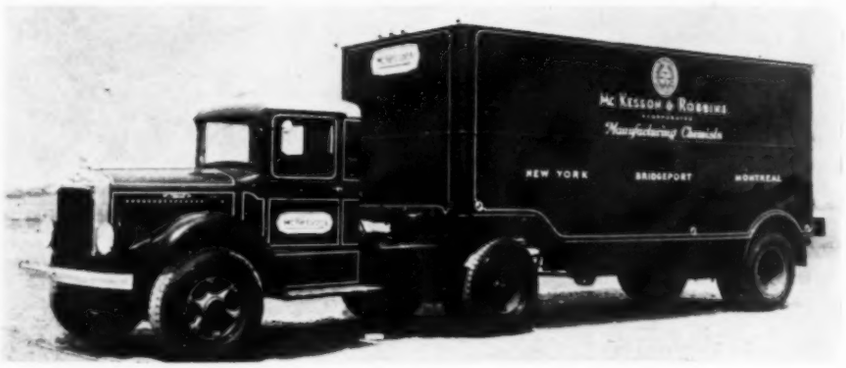
● Now that the winter really is here, you'll no doubt feel more inclined to hold a *real* winter meeting of your drivers and personnel. . . . If you are looking for a good moving picture to show, may we recommend the new cooling-system picture (with sound) entitled *"Cool Heads."* . . . This picture is brand-new; it presents a "popular science" review of the functions of *all* parts of the cooling system—the engine, radiator, fan, water-pump, the anti-freeze and even the water itself. . . . Your Editor recently had the opportunity of pre-viewing it. Of course, it contains a slight essence of advertising, which is not a bit objectionable, but the educational material that it contains far outweighs any advantage which might accrue to the producer (duPont). . . . As we understand it, this picture will be furnished to you, set up in your own assembly room or garage, with sound and everything, absolutely without cost or obligation of any kind. . . . Let us know when you would like to show it (the approximate date) and we'll do our best to arrange the details promptly. . . . If you are too busy to write a letter, just use the post-card which appears opposite page 50 of this issue and write across the face of it *"Cool Heads"* and the date you'd like to get it. . . . As we said before, there's no obligation and we are sure that the picture will please you very much.

●

SAME GIRL; SAME TIRE

● Don't believe it if you won't, but the two girls and the two tires

in the picture are the same (gals and tires). . . Both girls are Margaret Chamberlain, winner of the title "Mrs. America, 1938"; and both tires are General's new winter-summer job, designated as the YRT. . . . The national beauty-prize winner and the "year round" tire are shown at the right in their *winter* garb, with a fur-coat on "Mrs. America" and rubber lugs on the tread of the tire for winter-driving in snow and slush. . . . Both are shown at the left in *summer* attire, with the fur-coat abandoned and the rubber lugs buffed off the tire-tread. Neither are needed when spring and summer bring warm weather. Without the winter rubber lugs, the tire is General's regular silent grip tire. . . . Margaret Chamberlain, one of America's outstanding beauties, won her national beauty title last year in New York, in competition with hundreds of contestants from all parts of the country. . . . In 1937, she was the Queen of the Great Lakes Exposition in Cleveland.



THE NEWEST of three all-aluminum body trucks built for McKesson & Robbins, Inc., by Mack Trucks, Inc., for hauling chemical merchandise. . . . The Mack BX tractor-trailer unit has a 10-ton capacity and carries an additional 1,500 pounds of payload because of its light body. . . . The truck operates in Connecticut, where the gross load limit is 40,000 pounds, and the use of the aluminum body decreased the dead-weight of the unit so that a significant increase in payload could be effected, in spite of gross load limitations.

●

PAINTING POINTER

● One of the smallest machines used in the automobile industry, a device invented by plant engineers of the Packard Motor Car Company is said to be one of the most important and one of the most universally employed. It was originally designed as an instrument for mechanically painting stripes on automobile bodies and wheels. . . . The Packard striping tool has now been adapted for one of the most important processes in the general painting of an automobile body—the sealing of the metal edges at various points with a heavy layer of lacquer. Research disclosed that rust first develops at these points on a car and then spreads inwardly under the many layers of paint on the doors, panels and other large surfaces. . . . Previous practice has been to "touch up" these vulnerable spots with lacquer applied with a small brush. It was found that spray guns could not apply a sufficient quantity of material to seal the edges, and brushes were not much better. The mechanical striper adapted to the job now deposits as heavy a layer as is required to make a complete seal. Its use is said to have resulted in one of the biggest gains the industry has made in its fight to prevent rust on cars after they have been long in service. . . . While not needed to prevent rust on wooden truck bodies in the decoration of which it can be used for striping, the new adaptation of the Packard striping tool may prove valuable in halting the march of rust on metal truck bodies too. . . . If you are interested in further details, perhaps the Packard Motor Car Company will be glad to oblige. . . . Their address is Detroit, Mich. . . . You'll tell them about this announcement in FLEET OWNER, won't you? . . . Thanks.

●

LIGHT-CAR LOGIC

● Although registrations of motor vehicles in New York State increased during 1938, gasoline tax receipts declined considerably. . . . New York's motor vehicle commissioner seems inclined to attribute the decline in receipts to the fact that lighter cars are increasing in popularity and usage, and points out that this should be particularly true, in view of the fact that New York increased its gasoline tax rate last year, by 1c per gallon. . . . While we have no quarrel with the commissioner, we feel that better automotive design, more efficient engines and the general improvement in fuels and lubricants are more responsible for the apparently lower consumption of gasoline, rather than the more universal use of light cars, although *both* may be contributing factors. . . . What do *you* think?

The sow's ear

AND THE V·8 ENGINE

THE proverb says that you can't make a silk purse from a sow's ear. The quality just isn't there. It's the same with trucks. No truck can turn in a record for reliable, economical service without *basic quality*.

We don't point to the Ford V-type 8-cylinder engine as the chief advantage of Ford Trucks. It's only a symbol of the extra value that a Ford gives you. The full torque-tube drive, the 47 different kinds of steel, the extremely fine tolerances to which vital parts are held—any of these points of quality or a dozen others will convince you that Ford Truck construction is *quality* construction.

The Ford Motor Company is in the truck manufacturing business—and has been for twenty-one years. A point-by-point examination of a 1939 Ford V-8 Truck or Commercial Car will convince you that there is no unit in the world of comparable size and price that is better designed and better built to serve you.

CHECK YOUR TRUCK AGAINST THESE QUALITY FORD FEATURES!

★ **V-8 ENGINES—95, 85, 60 HP.**— Smooth, dependable low-cost power. Quality materials and precision workmanship for efficient operation and long life.

★ **SEMI-CENTRIFUGAL CLUTCHES**— Non-tiring pedal action. Centrifugal force provides tremendous power-transmitting capacity. Up-keep costs kept at a minimum.

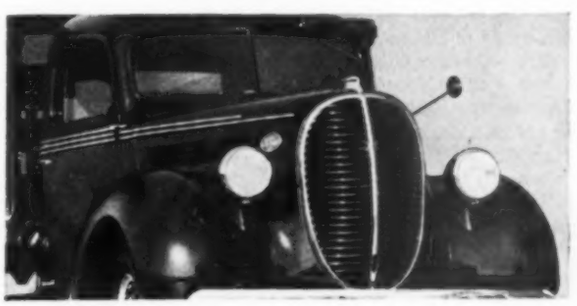
★ **STURDY, TROUBLE-FREE TRANSMISSIONS** — Large roller and ball bearings for all forward speeds reduce friction, save power. Oil-hardened chromium-steel gears for long service.

★ **FULL TORQUE-TUBE DRIVE**— Springs relieved of driving and braking stresses provide better cushioning of truck and its load. Shackle-bolt wear reduced, spring life prolonged.

★ **RUGGED REAR AXLES**—Driving pinion is straddle-mounted to maintain gear-tooth alignment. All truck axles are full-floating, with weight carried on axle housing — none on axle shafts. These features increase dependability and long service, reduce up-keep expense.

★ **BIG, POWERFUL HYDRAULIC BRAKES**— Equalized braking action for straight stops. Big brake-drum diameters and large lining areas for long brake life and low-cost maintenance.

In every detail, the quality of all Ford bodies matches the high quality of Ford chassis. Their exceptional durability means long service with low up-keep cost.



FORD V·8 TRUCKS *and Commercial Cars*

FORD MOTOR COMPANY NOW OFFERS FORD V-8 CARS AND TRUCKS, MERCURY, LINCOLN-ZEPHYR AND LINCOLN MOTOR CARS

Stripping *the* Thread » »

(Continued from Page 10)

TRAILMOBILE TROPHY

● Last month (on page 37) we told you about the new Trailmobile Safety Trophy, and showed you a picture of the committee responsible for the details. . . . This month we show

you the trophy itself. . . . In the picture Charles G. Morgan, Jr., Manager, Division of Operations of American Trucking Associations, is shown making the formal announcement of the Trophy, at their recent annual convention. . . . This handsome trophy (in case you did not see last month's announcement), entered in perpetual competition, becomes the permanent property of a three-time winner. All operators of all classes are permitted and encouraged to compete for this trophy, which is awarded to the operator best equipped to render aid and service to the public on the highway. . . . Applications for entering the competition can be secured from The American Trucking Associations, Washington, D. C. who conduct the competition. . . . This new safety award is designed to bring to the consciousness of the public the fact that the commercial truck operator is the safest driver on the road.

●

DESIGN YOUR OWN?

● Elsewhere in this issue is an editorial description of Reo's new truck line for 1939. . . . It is our custom, of course, to tell you about the offerings of *all* major truck manufacturers, whether they advertise with us or not, but ordinarily we would not breathe a word about it in this so-called column. . . . What prompts this mention of the thing is the fact that Reo seems to have done an interesting trick, in offering *complete* standardization of *all* major units to the end that *all* of them are *interchangeable* with each other. . . . In other words, you can set out to "design" your own truck, telling them which engine you wish, which clutch, which transmission, which rear axle, frame, springs, tires, etc., etc. . . . Of course, there is a good chance that some operators might go "haywire" and order something which they *think* they want, only to have it work out disastrously when the unit is placed into service. . . . But we don't think that chief engineer Flogaus would let you work out a "Rube Goldberg" combination, without at least warning you with the words *"No can do"*—or something. . . . We really should not have mentioned the matter on this page, but sometimes our enthusiasm runs away with us and most Editors are temperamental cusses, anyway, believing that they can do pretty much as they please. . . . This humble person senses that it is his privilege to thus comment upon the activities of said truck manufacturer. . . . So that's that. . . . We think you'll find *our* version of Reo's announcement interesting, to say the least. It's elsewhere in this issue.

●

TELEVISION AUTO PHOTO

● Here is the world's first television photo of an automobile. . . .

While NBC staged an experimental television broadcast for executives of the automotive industry during the recent New York Automobile Show, a news-camera caught this image of the first car to appear on the "kinescope"—or viewing screen. . . . It shows the new 1939 Plymouth in Rockefeller Plaza, as E. P. H. James, master of ceremonies, greets A. D. Innis (left), regional manager of Plymouth Motor Corporation.

●

STYGIAN NOSTRUMS

● What intriguing thoughts are conjured up by a recent article in the *Ohio Medical Journal* recounting the properties of a capsule which, taken by the driver as night falls, will aid his vision and help him through the semi-blindness of night driving. . . . The capsule, according to the *Journal*, will be fortified with carotine-in-oil, a rich source of Vitamin A, the vitamin that helps the eyes to function in the dark and strengthens them against the glare of oncoming headlights. It is claimed that the vitamin also reduces eye-strain and fatigue. . . . How much more engaging would be the prospect of some potion capable of deflating the ego of the roadhog or of quietly dispelling the illusions of self-conceived Barney Oldfields. . . . What a blessing if some man of science would concoct a serum which, injected into these cloddish anatomies, would suddenly imbue them with a rare acuteness; with reflexes not too many fractions of seconds behind the modern need. . . . But most of all, and if we could have but that alone—a simple, homely pill, kept on the shelves at the corner drug store—a pill that would lend to the slow careless brain a modicum of reason and judgment, courtesy and common sense. . . . But until the laboratory fulfills our wish, we may as well accept with thankful humility the boon of the capsule which will help the driver to carry on his perilous occupation after dark. . . . Goodness knows we need it! . . . At least until our major, heavily traveled highways are provided with adequate lighting for night driving—at least until they are modern the clock around, not just in the daytime. . . . The foregoing editorial was *not* written by us—we're not *that* good. . . . It is a little but of constuctive propaganda, issued by the Street & Highway Safety Lighting Bureau, New York, N. Y.—an organization campaigning for more and better-lighted highways. . . . We thought you'd like it, so we printed it.

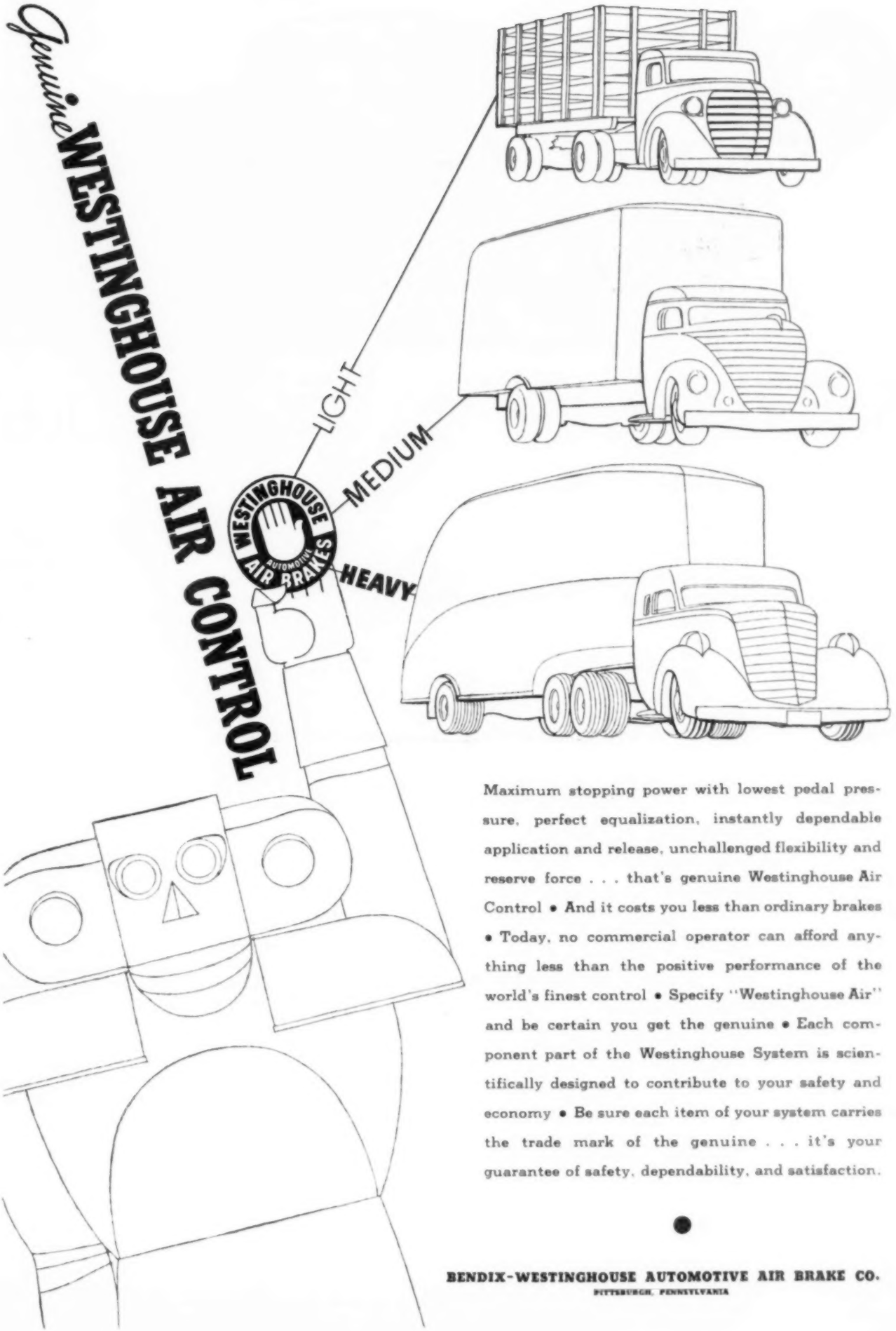
●

DOUBLE-PURPOSE

● "Midget" trucks like this one are proving practical utility cars, Firestone Service Stores executives tell us, enabling them to give quicker and more inclusive service to their patrons. . . . They find that their capacity is ample for the tires, bat-

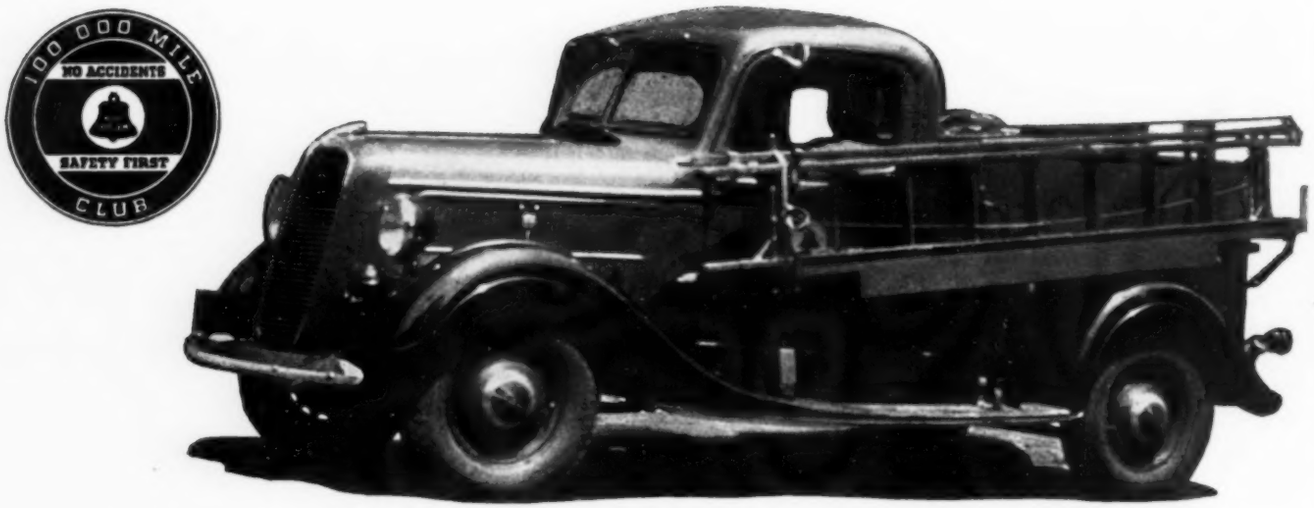
teries, auto supplies and tools needed on quick service calls. . . . With Firestone's newly developed tow-bars, they find them very useful for car pick-up and delivery, too. . . . Although primarily selected for traffic agility and economy of operation, Firestone has found these small cars to be excellent advertising mediums. . . . The make of the "truck," of course, you know; no use repeating it here.

Genuine **WESTINGHOUSE AIR CONTROL**



Maximum stopping power with lowest pedal pressure, perfect equalization, instantly dependable application and release, unchallenged flexibility and reserve force . . . that's genuine Westinghouse Air Control • And it costs you less than ordinary brakes • Today, no commercial operator can afford anything less than the positive performance of the world's finest control • Specify "Westinghouse Air" and be certain you get the genuine • Each component part of the Westinghouse System is scientifically designed to contribute to your safety and economy • Be sure each item of your system carries the trade mark of the genuine . . . it's your guarantee of safety, dependability, and satisfaction.

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE CO.
PITTSBURGH, PENNSYLVANIA



Safe Drivers *form* "100,000-Mile Club"

RECENTLY, the Bell Telephone Company of Pennsylvania organized its "100,000 Mile Club." Each of the 486 charter-members of this unusual organization has driven company cars, trucks and motorcycles for ten years or more, over a distance of at least 100,000 miles, *without a single accident.*

As a whole, the "100,000 Mile Club" has achieved a safety record of nearly fifty millions of miles of faultless driving.

The majority of the "100,000 Milers" are "trouble-shooters." These men must be ready at any hour of the day or night to go out and "clear" lines that have been damaged by wind, rain, snow, sleet, lightning, fire, flood and accidents.

Naturally, these trouble-shooters must travel under stormy road conditions that make most of us thankful that we can stay at home and take life easy.

Curiously, however, despite the fact that the driving of trouble-shooters is usually done under the urgent pressure of emergency conditions, they never exceed a 40 M.P.H. speed limit. *How* they arrive at their destination is more vitally important than *when*. Speed causes accidents; and accidents delay getting to, and finishing, the job to be done.

The fifty-odd million miles of safe driving made by the "100,000 Mile Club" is *not* the result of a special safety drive. Its foundations were laid long before the present nation-wide crusade for greater highway safety began. It is the direct result of well-established safety *habits* which govern the everyday, routine operation of Bell Company cars.

The safety habits which enabled these 486 men to drive ten years without an accident are nothing more than the application of common sense and common courtesy.

Every Bell Company driver is impressed with the rule: *"A company car never has the right way."* In practice, this means let the fellow in a hurry go by. Moreover, it means that *no one ever has to jump to safety for a Bell Company car.*

This latter bit of road courtesy has won the goodwill of many thousands of pedestrians, for the company and its drivers.

The drivers of Bell Company trucks are trained never to try and beat a signal light, nor pass a "stop" sign without actually stopping. It is far better to come to a "dead stop" at these protected intersections, than to be "stopped dead" by an accident.

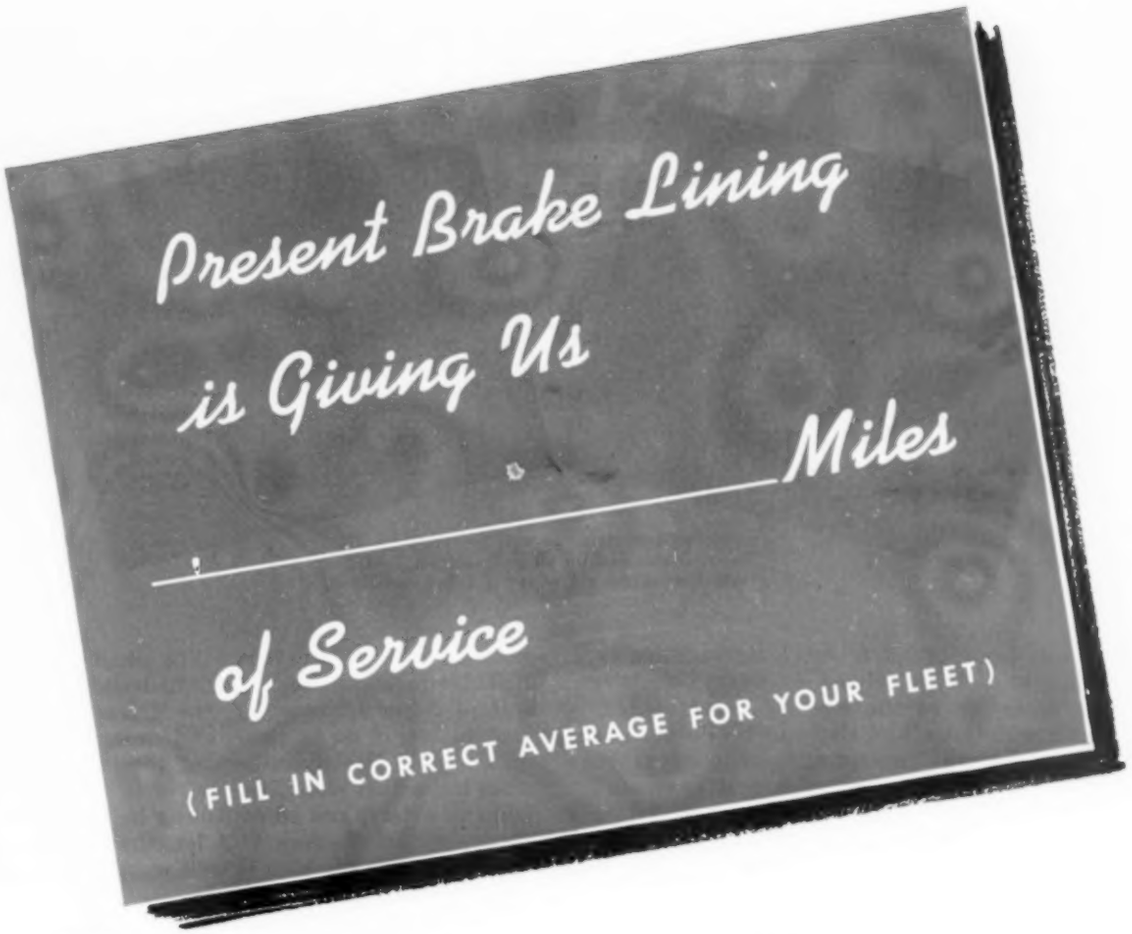
These *few* safety habits, plus a good car or truck, kept in perfect working order, are all that is needed for safe driving all of the time. Brakes, tires, chains, lights, batteries, steering gear, etc., of Bell Company cars are constantly checked, of course. Nothing is left undone that might cause a delay or contribute to an accident.

The illustrations which accompany this article are, of course, self-explanatory. They are just a few random shots to show how this important checking of all "safety items" is done periodically on all Bell Company vehicles.

Some of the units of the Bell Telephone Company (United States) operate their own fleet service shops. In many cases, however, no shops are operated, but the vehicles are inspected at definite intervals by "motor vehicle supervisors" and the lubrication, adjustment or repair work is done at designated outside service stations. *(Please turn to page* 16)

48,600,000 MILES
without a single accident

THAT is the remarkable safety record made by 486 employees of the Bell Telephone Company of Pennsylvania, over a ten-year period. Each employee drove a company car or truck more than 100,000 miles without even an argument with a traffic cop. That is an achievement well worth the while of every fleet to strive for. ***It can be done!***



If you want more miles—and greater safety, too—try

In nearly every type of fleet, involving all kinds of units, American Brakeblok brake lining is helping operators increase their best average brake lining mileage.

At the same time, American Brakeblok brake lining is reducing accidents in these fleets.

American Brakeblok brake lining is world famous for safety and longer wear. Age, climate and weather do not affect it. It never swells or separates under the intense heat and pressure of braking.

Give American Brakeblok brake lining a service test on one or two of your units —and you'll learn facts that may be worth money to know.

AMERICAN BRAKEBLOK
4600 MERRITT AVENUE · DETROIT, MICHIGAN
Division of American Brake Shoe & Foundry Co.

American Brakeblok
AMERICAN BRAKEBLOK
SAFETY BRAKE LINING

Motor operation, as well as safety items, is checked on all Bell vehicles. At the right the windshield wiper is being examined.

This plan has been found to work out admirably well, according to Bell Telephone Company officials, especially in cases where the fleet is decentralized, operates over a wide area, and the vehicles do not get back to the "home garage" except at lengthy intervals.

The important thing to remember is that *some* sort of regular, definite inspection and maintenance system should be followed—whether the work is done in your own shop or in an outside shop. . . . And we know that the Bell Telephone Company's system is very efficient and practical.

Getting back to Bell Telephone Company's safety activities, there are four cardinal rules set down and followed by all Bell Telephone Company vehicle drivers. Strict adherence to these rules is in no small way responsible for the remarkable safety record of 48,600,000 miles without a single accident.

The rules are: *(1) Always let the other fellow have the right of way. (2) Never make a pedestrian jump away from your car. (3) When driving, remember that time is cheap; and that human life is not. (4) Keep your brakes, tires, lights, battery and other important vehicle units in first-class working order at all times.*

We have in our files a splendid photograph which, unfortunately, space did not permit our using in conjunction with this article. The photograph depicts a Bell Telephone vehicle about to back out of position. Before doing so, however, the driver gets out of his seat to see if all is clear, and observes a little child on a bicycle directly in back of the truck.

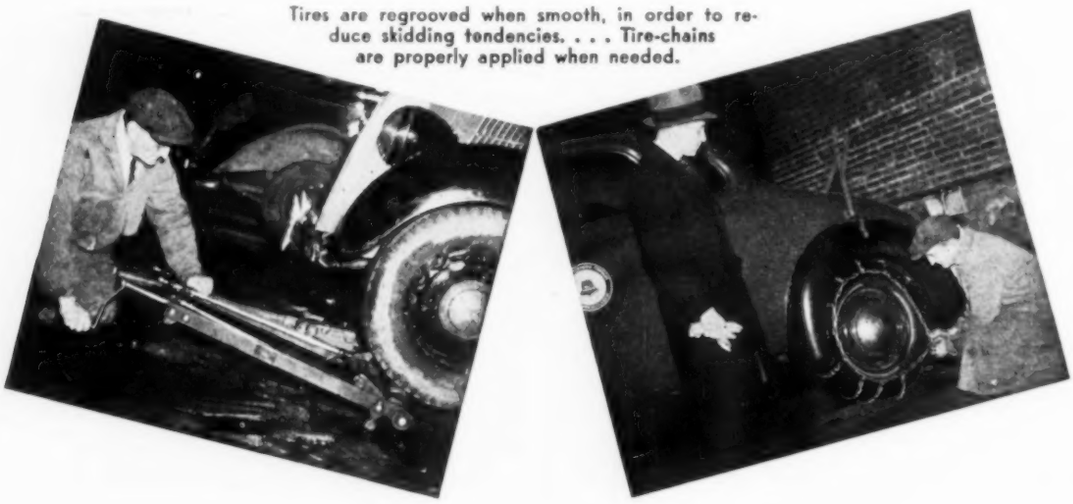
In the actual photo, the driver is seen escorting the child to safety, and admonishing her to *"Let's go over there—out of the way."* A lengthy caption goes with this photograph, which is well worthy of reproduction here. It reads:

"Look before you move your car." . . . "Knowing that small, active children frequently play or leave their toys behind parked cars, Bell Telephone Company drivers are trained to keep on the lookout for them. It is a safety habit that helps to protect our children from harm; and it is one of the few simple safety habits which have enabled many Bell Telephone Company drivers to go more than 100,000 miles without a single accident."

The photo at the top of the first page of this article shows a Ford pick-up, equipped with line-trouble-shoooter's outfit. Various makes of light cars, of course, are used by Bell Telephone Company for this work. Both Fords and Chevrolets are depicted in the "shop" pictures.

(*Please turn to page* 56)

Tires are regrooved when smooth, in order to reduce skidding tendencies. . . . Tire-chains are properly applied when needed.



NEW 1939 CHEVROLET TRUCKS

MASSIVE NEW SUPREM-LINE TRUCK STYLING . . . COUPE-TYPE CABS . . . VASTLY IMPROVED VISIBILITY

giving a much handsomer, sturdier appearance—more seating room—and much greater driver comfort, as well as greater driving safety.

●

FAMOUS VALVE-IN-HEAD TRUCK ENGINE

with even greater economy-leadership and with the maximum pulling power for which Chevrolet trucks have always been famous.

●

POWERFUL HYDRAULIC TRUCK BRAKES

of the special Chevrolet double-articulating, controlled self-energizing design—the safest and most dependable brakes built today.

(Vacuum-Power Brake Equipment optional at additional cost.)

●

FULL-FLOATING REAR AXLE

extra strong—extra rugged—extra dependable . . . available on Heavy-Duty models only.

(2-Speed Axle optional at additional cost.)

Higher Quality—Lower Prices

45 different models in eight wheelbase lengths

Your business is different, of course. It is for just that reason that you will be especially interested in what Chevrolet has done to provide motor trucks exactly fitted to your particular needs. There is hardly any business for which there are not appropriate trucks to be found among the Chevrolet models for 1939—the most complete and most capable line of trucks Chevrolet has ever offered.

Chevrolet now offers you a choice of 45 different models, in eight different wheelbase lengths, and all Chevrolet-built through and through—chassis, engines, cabs and bodies. Capacities cover the full range from that of the fleet Sedan Delivery to the new Cab-Over-Engine Heavy Duty models with a range of gross weight ratings to a maximum of 14,000 pounds. And all these models sell in the lowest price range.

Every desirable feature of advanced engineering is to be found in these new trucks. They are the great power-pullers of their price class—the most economical trucks to be had. New lower prices make them the outstanding values of the year.

CHEVROLET MOTOR DIVISION, *General Motors Sales Corporation*, DETROIT, MICHIGAN

General Motors Instalment Plan—convenient, economical monthly payments. A General Motors Value

"DESIGNED FOR THE LOAD POWERED FOR THE PULL"

CHEVROLET TRUCKS

DETROIT PUBLIC LIBRARY

INSTALLING A REPLACEMENT DIESEL ENGINE

CAREFUL ATTENTION TO DETAILS

CHANGE-OVER

A FIRST-HAND account of how the East's largest fleet of Diesel-powered trucks got that way. . . . And some of the changes made, the experiences gained, and the savings enjoyed by the country's foremost sand and gravel fleet operator.—Editor.

QUITE a bit of publicity has accompanied the recent practically complete change-over of our truck fleet to Diesel power. This has resulted in a great many requests from interested observers, for various kinds of information, particularly for data with reference to the replacement installation of the new Diesels in our older trucks, and also for anything that we could offer regarding the maintenance of these engines.

In order that other fleet operators, in all lines of business, might readily obtain such information, the Editor of this publication suggested that we put down "on paper" our experiences in this direction, together with our *present* plan of Diesel engine maintenance—or should we say *preventive* maintenance? We are very happy to do this; a rough outline of the procedure followed, and our findings, is presented in the following paragraphs, for the general benefit of all fleet operators who may be interested.

About a year ago (December, 1937, to be exact) we installed two Cummins Diesel engines in AC Mack trucks, for test purposes. One of these was a 4-cylinder Diesel, replacing a 4-cylinder gasoline engine; the other was a six, which replaced a six. The trucks were two taken from our regular service fleet, and no "favors" were shown—the trucks being selected at random.

Of course, we paid careful attention to the performance of these two Diesels, and we found that they *actually did* what the engine manufacturer promised they would do. So, in June and July of 1938, we converted 47 more of our old Macks to Diesel power. These were 1930 and 1931 4-cylinder Macks, Model AC, and the new engines were 4-cylinder Cummins jobs.

The performance of the trucks, as well as that of the Diesel engines, was so satisfactory that we decided to go in for Diesels on a larger scale. And in October of the same year it became time to add some *new* units to our fleet, so it was only natural that we should get more Macks and more Diesels.

NEW EQUIPMENT, ORDERED WITH DIESEL

The order which we then placed for 79 *new* Diesel-powered units (at the low point of the recession) has been widely publicized; perhaps you've heard about it? The facts are that 69 of these are powered with Cummins Diesels and 10 of them have the new Mack-Lanova Diesel engine—an engine of Mack's own design and manufacture.

Our immediate plans call for the conversion of 43 more Macks (6-cylinder, 1935 models) to 6-cylinder Diesel engines; and also for the conversion of 10 of our present Sterling trucks to 4-cylinder Diesel engines. It is anticipated that this further conversion work will be performed during January, 1939.

It is also on our schedule to convert the remainder of our heavy-duty fleet to Diesel power on or before April, 1939, so that by this time our Diesel-powered vehicles will number 240 units.

What you have read so far might seem like a "glorified testimonial" for the particular makes of trucks and engines. However, let us assure you that it is *not*. It is quite necessary to mention these names, in order that the reader have a true picture of the story. We certainly feel that it spells "n-e-w-s."

There is always somebody who asks us "What changes to the chassis did you make, in order to make the Diesels work (on old equipment) satisfactorily?" . . . We are often asked what we did with regard to clutches, transmissions, universals, drive-shafts and rear-ends. The answer is very simple. NO CHANGES were made in the operation of these parts, with the exception of the replacement of the clutch springs with heavier ones. The reason for this is because we felt

NEATLY INSTALLED AND READY FOR THE ROAD

RESULTS IN HIGHLY SUCCESSFUL

to DIESELS

An Interview with
Anthony Pope,
Vice-President,
Colonial Sand & Stone Co., Inc.,
New York City, N. Y.

that the greater torque of the Diesel engines could be better realized—*not* that we anticipated any trouble.

In most cases the engineering departments of the truck manufacturer (Mack) and also of the engine maker (Cummins) were consulted before each installation was made, thus assuring us of not going "haywire" on any of the engineering details. We found that the Diesel engines were to be governed at 1,800 r.p.m.; that in some cases greater piston displacement, and in all cases greater torque would be available (as compared to the engines replaced); so the following procedure was followed:

The 4-cylinder gasoline engines, formerly used, operated at a governed speed of 1,650 r.p.m. The greater torque developed permitted a change in the *driving* sprockets of these trucks, which, incidentally, were chain-drives. Larger sprockets were installed. This, with the increase in maximum governed r.p.m. of the engines, resulted in an increase of the maximum governed road-speed of the trucks—from 22 m.p.h. to 32 m.p.h.—almost 50 per cent.

On the 6-cylinder jobs, a somewhat different condition was encountered. These engines had been operating at a governed speed of 2,050 r.p.m. Here the engine speed was reduced (the new Diesels being governed at 1,800 r.p.m.). However, the former maximum governed road-speed was increased—from 32 m.p.h. to 35 m.p.h.—the trick being accomplished by larger driving sprockets, which the larger engines could handle with ease.

It goes without saying that the reduced engine speed (in the 6-cylinder models) carries with it all advantages typical of such a change, i. e., longer engine life and reduced wear on transmission, clutch, universals and drive-line. The higher road-speed is accompanied by greater efficiency—to the tune of a 50 per cent saving on fuel cost alone. We also find that we can make an extra delivery each day, with each truck. One particular run which used to take 3¾ hours now only takes 2½ hours. We figure, all things being considered, that the Diesel engines are saving us from $3 to $5 per day, per truck.

In order to thoroughly understand the "science" of our change-overs, it might be well to give you the specifications of each engine—both the new ones and the old ones which they replaced.

The 4-cylinder gasoline engines replaced were the well-known Mack AC, having a bore and stroke of 5 x 6 inches, a piston displacement of 471 cu. in., and a maximum torque rating of 300 lb. ft. . . . The 4-cylinder Diesel engines have a bore and stroke of 4⅞ x 6 inches, a piston displacement of 448 cu. in., and a maximum torque rating of 335 lb. ft. Thus it will be seen that while the piston-displacement of the Diesel engine is less, its torque is greater.

The 6-cylinder gasoline engines replaced were the well-known Mack BQ sixes, having a bore and stroke of 4¾ x 5¾ inches, a piston displacement of 611 cu. in., and a maximum torque rating of 390 lb. ft. . . . The 6-cylinder Diesel engines have a bore and stroke of 4⅞ x 6 inches, a piston displacement of 672 cu. in., and a maximum torque rating of 500 lb. ft. Thus it will be seen that in the case of the Diesel sixes, both piston displacement *and* maximum torque are greater.

The increased torque, as said before, permitted using larger driving sprockets on the chain-drives. No mechanical changes, other than preparing suitable mounting brackets and frame-reinforcements—and also heavier clutch springs—were made, in order to

(*Please turn to page* 20)

ANOTHER OLD JOB, DIESEL REPOWERED

SIX AT A TIME. . . . That's how they do it in New York! . . . This view shows six of the new Cummins Diesel engines being installed in new Mack chasses at New York City. . . . Colonial's conversions to Diesel power were made in similar "mass" groups, as told in the accompanying story. . . . Ten of the new Mack-Lanova Diesels were recently bought.

accommodate the Diesel engines. This sounds contrary to popular belief, but it's true, and we have encountered no unusual service difficulties, traceable to the Diesel engines or to any of the component chassis parts.

And now a few paragraphs about our maintenance procedure. For Diesel maintenance, our regular preventive maintenance control system provides for injector and fuel-pump removal and inspection at regular intervals, at which time replacement units are substituted, in order to keep the vehicles in the shop as short a time as possible.

Our preliminary Diesel operation, thus far, has revealed none of the so-called "maintenance bugaboos". We have heard a lot about fuel-pumps and injectors, and since we have read that these units are *likely* to cause some trouble if not attended to, we are anticipating *something*, as in the Colonial fleet we try to lick our maintenance problems before they start.

Our present plan is to remove (for inspection, cleaning and replacement) all injectors every 800 operating hours; and each fuel-pump assembly every 3,000 hours. Figuring 25 days per month and 8 hours per day, this would give us 200 operating hours per month, so that the injectors would be removed at least once in four months. . . . By the same method of figuring, the fuel-pumps would be taken down every fifteen months, which seems like very efficient service, if we can do it.

Reasoning this out on a mileage basis, if the trucks average 20 miles per hour, including traffic stops, etc., these figures would become 16,000 miles for the injectors and 60,000 miles for the fuel-pumps. We must reiterate that this plan is only a preliminary one; after further experience, these periods may be lengthened—or, if increased consumption of fuel or oil is noticed, they will be shortened.

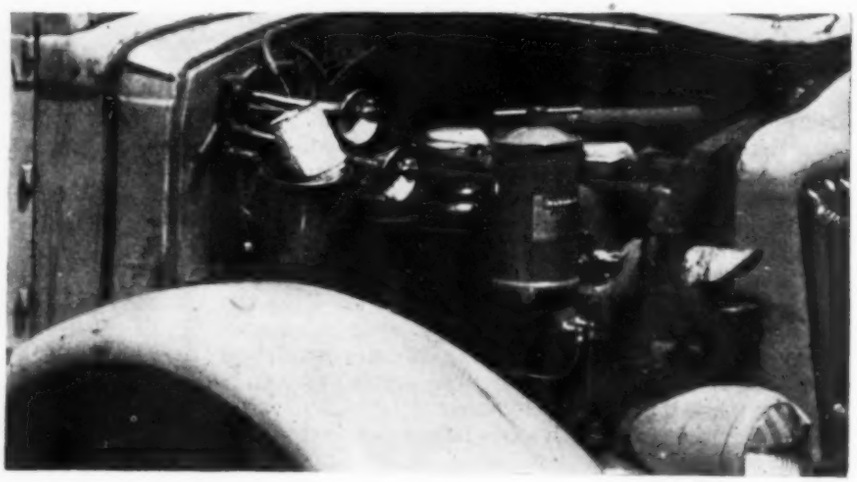
Garage superintendents (of which Colonial has 12, in as many garages) are notified when each unit has reached its respective number of operating hours for attention to Diesel fuel equipment. The actual removal and replacement of additional units is done by our own shop mechanics, in our own garages, under the supervision of the shop foremen. When the injectors are changed, the fuel-pump screens are cleaned at the same time, and all valve clearances are checked and adjusted.

Extra injectors and fuel-pumps are available in all 12 of our garages. Those which are removed from the engines are sent to our central garage, where we maintain a completely-equipped test bench (equipment recommended and furnished by Cummins). All injectors and fuel-pumps are thoroughly cleaned, reassembled and tested; then they go out to the garages to be kept in stock for replacement when inspection time comes.

It is important to note that there is no "mystery" about these Diesel engines, their fuel-system or equipment. Any mechanic with average intelligence can disassemble, test and reassemble the entire fuel system, which is very simple. In our particular case, our master mechanics received a little something in the way of "special education".

Since the engines were going to be considered only *one* part of the complete vehicle, it was felt that it would be more practical to keep our present mechanics

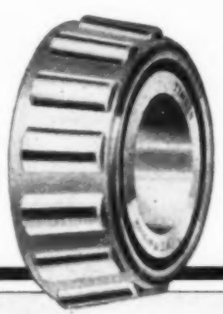
(*Please turn to page* 22)



OIL-FILTERS and AIR-CLEANERS play important parts in the operation and maintenance of Colonial's fleet of Diesel-powered trucks. . . . This close-up shows the "auxiliary" by-pass type oil-filter, which is used throughout the fleet, to simplify the work of the built-in filter. . . . The twin air-cleaners may be seen at the left of the oil-filter.

Where else could you get OVERNIGHT SERVICE *on 2,500 sizes of* TAPERED ROLLER BEARINGS?

During more than 40 years of manufacturing TIMKEN Bearings we have accumulated patterns and dies for 2,500 different sizes. These sizes are all necessary to give complete service on tapered roller bearings. All of these sizes are available for overnight delivery from any of our 16 factory-controlled branch warehouses augmented by a nation-wide chain of Authorized Distributors.



TIMKEN
TAPERED ROLLER BEARINGS

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO
Service-sales Division

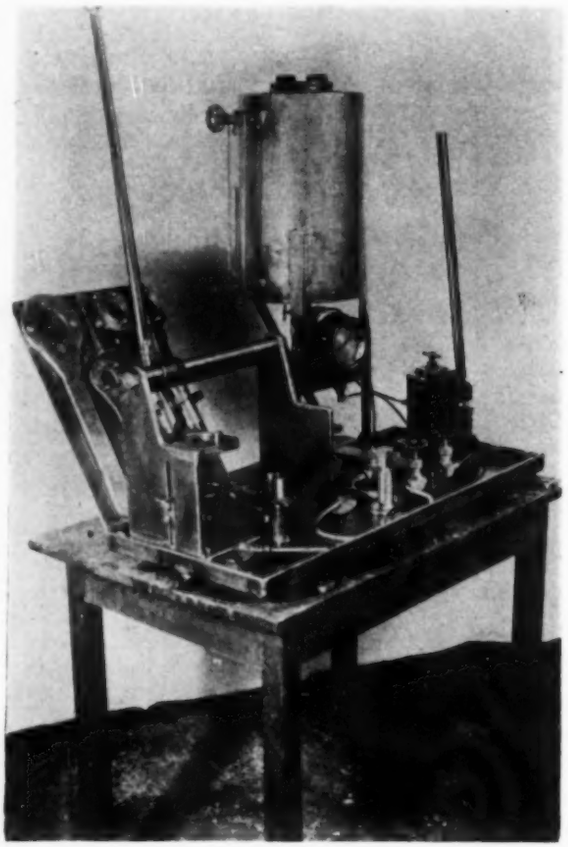
—rather than to add Diesel school "graduates", who would need to be trained in all of Colonial's other maintenance methods. In this connection the Cummins Engine Company cooperated by giving two weeks of actual training and practical instruction to each of our master mechanics, directly in the Cummins service station here, for which we are quite grateful.

By thus "priming" the lads—a complicated course in Diesel engineering was *not* required—they rapidly became Diesel "experts" from the *practical* side of the picture, and in a very short time, too. This seems to have worked out splendidly, and we can recommend a similar procedure to other fleet operators who might be considering using Diesels.

A great many of the inquiries which we get regarding our maintenance program include questions on Diesel lubrication, so we will be sure to get in something on that subject.

First, we use the *same* type of oil that we used in our gasoline engines. No "special" oils have been found necessary, and we find that we can get the best economy and efficiency out of a straight (untreated) petroleum motor oil. And we have experienced *no* stuck piston rings, in case you might ask, and no bearing troubles, either.

A built-in oil-filter comes in the base of every Cummins engine. To assist the operation of these "master" filters, through which *all* oil passes, we have decided to install an *auxiliary* oil-filter on each engine, one of the popular makes, using a cotton cartridge of special design. (This is a filter mounted externally, of the by-pass type, and is illustrated on page 20).



DIESEL Test-Bench. . . . A completely equipped test-bench, recommended and furnished by Cummins, is installed at Colonial's main shop. . . . On this equipment all fuel-pumps and injectors are tested, after being rebuilt, when needed.

After comparative tests of oil-filters, on our gasoline *and* Diesel engines, we have decided to standardize on this one make, which has practically doubled our oil mileage between oil changes. However, because our oil and filter-change practice is still in the preliminary stage on the Diesels, our method of using these filters is somewhat different from the usual practice:

With the Diesel engine oil-change period ranging from 100 to 250 hours, the filter cartridges are replaced at from 50 to 125 hours. In other words, two new filter cartridges are used for every Diesel engine crankcase change—as a minimum. Sometimes more, depending on the condition of the engine and the oil. We feel that filter-cartridges and oil are far cheaper than bearings, and that the continued performance of our trucks is more important than a few dollars in extra expense. So far as the oil-filters are concerned, we are perfectly satisfied, from our experience, that we are on the right track.

However, may we again point out that this plan is only a preliminary one; after further experience, these periods may be lengthened—or, if increased consumption of fuel or oil is noted, or if piston ring or bearing trouble crops up, they will be shortened. But we do not think they will be shortened—they will be lengthened, if anything.

Efficient cleaning of air is just as important as oil-filtering. Quality, oil-bath type air-cleaners are standard equipment on all of the new Diesel engines, and we rigidly adhere to the maker's instructions, washing and refilling the inner and outer cups in accordance with the directions—every 10 to 60 operating hours, depending on whether the condition is dusty or not. At this time, the oil-level is filled to the "bead".

We have been using our regular motor oil for this purpose—S.A.E. 30 to 50 for temperatures above freezing; S.A.E. 20 when the temperature gets below freezing; and should it get below zero, we will use S.A.E. 10 for this purpose. We find that a good air-cleaner materially helps to keep the inside of engines clean; it keeps the oil clean and lengthens the life of all wearing parts, such as cylinders, pistons, rings and bearings.

We have been asked about fuel-soot and other forms of crankcase contamination, especially since our operation is one in city traffic, for a great part, with many starts and stops and considerable idling. We realize that fuel-soot getting down into the oil has a great bearing upon the fluctuation of cartridge life. Fuel-soot results, as a rule, from incomplete combustion, idling, starting, stopping and fluctuations of the load, temperature and ignition pressures. We also realize that if we had more "over-the-road" operation, this might allow oil and cartridge changes at double our present figures.

But we seem to be having very good luck, experiencing practically no fuel-soot. This is because, Cummins engineers tell us, we are using the very latest type of Cummins injectors, in which the plunger seats more perfectly and cuts off any "drippings", which are largely responsible for fuel-soot. Of course, you will ask us about smoke. The latter is brought about

(*Please turn to page* 56)

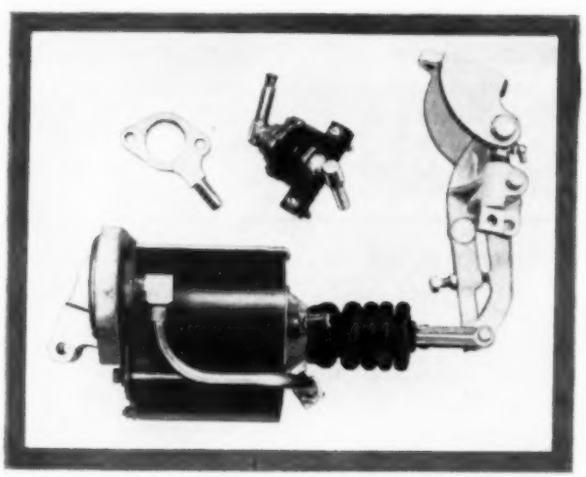
LET'S GET THIS STRAIGHT

Genuine Bendix B-K Vacuum Power Braking Systems Offer . . .

1 Low initial installation cost

2 Sufficient Controlled Power for heaviest loads

3 Extremely low maintenance cost due to few moving parts



IT costs money—not much, but an appreciable amount—to put power braking on a truck. Maybe you *can* cut the cost a dollar or so by specifying some cheaper type. But *why?*

Here is a fact that comes to you net—no discount:

The only vacuum power braking system you can get, that will give you all the advantages for which power braking is bought, is Bendix B-K.

That's a large statement, but there's more than a dozen years of Power Braking experience and reams of evidence here at South Bend to prove it. Every one of the more than 2,000 Bendix trained service stations is equipped to show you and serve you.

BENDIX PRODUCTS DIVISION
BENDIX AVIATION CORPORATION
SOUTH BEND INDIANA

BENDIX

BK POWER BRAKING

Controlled Vacuum

POWER BRAKING

C. O. E. Tractors Permit *Use of* "Outlawed" Semi's

•

FORD ENGINEERS call attention to new possibilities in the matter of increasing semi-trailer lengths in various states, where short wheelbase, cab-over-engine tractors are employed.

BELIEF of Ford engineers that a definite need and widespread utility prevails in the transportation field, for a short wheelbase tractor, finds confirmation in the fact that a number of semi-trailers which have been in retirement since the advent of recent overall maximum length laws, are again rolling over the highways.

This time the trailers are traveling behind short wheelbase cab-over-engine tractors (such as the Ford V-8) and conform with the length restrictions of the states in which they operate.

Passage of various maximum length laws in recent years caught many fleet operators with "over-size" trailers. Some of them were able to dispose of such equipment to operators in other states with lower maximum lengths. Many, however, were simply compelled to retire their "over-size" equipment.

Realizing that this was one of many conditions under which a short wheelbase unit would be useful, Ford engineers developed the 101-inch wheelbase cab-over-engine chassis. This was duly announced in this publication last year, a complete technical description appearing in June, 1938 issue, on page 39.

Operators report that a maximum amount of the total overall length can be taken up by the semi-trailer when used with a chassis of this type, or similar.

The Ford 101-inch wheelbase, cab-over-engine tractor, for instance, measures exactly 11 feet from bumper to fifth-wheel pin. It will take a semi-trailer measuring 74 feet from rear to pin, in Arizona, Georgia and Rhode Island; 49 feet from rear to pin in California, Delaware, Montana, Nevada, Utah and Washington; 39 feet from rear to pin in Michigan, New York and Vermont; 34 feet from rear to pin in Arkansas, Iowa, Louisiana, New Hampshire, New Jersey, New Mexico, North Carolina, Oklahoma, Pennsylvania, Texas, Virginia, West Virginia, Wisconsin and Wyoming; 29 feet from rear to pin in Alabama, Colorado, Connecticut, Indiana, Maine, Massachusetts, Minnesota, Missouri, North Dakota, South Dakota, and Ohio; 24 feet from rear to pin in Florida, Idaho, Illinois, Kansas, Nebraska, Oregon, South Carolina, and Tennessee; 22 feet from rear to pin in the District of Columbia and Mississippi; and 19 feet from rear to pin in Kentucky. Maryland has no restrictions on length.

A case which recently came to light in Michigan illustrates wnat can be done along this line. An "over-size" tractor-trailer outfit previously used for trans-

(*Please turn to page* 56)

SEMI-TRAILER LENGTHS PERMISSIBLE With 101-Inch WHEELBASE TRACTOR

(*Where distance measures 11 ft. from front bumper to fifth-wheel pin*)

74-foot trailer	Arizona, Georgia, Rhode Island.
49-foot trailer	California, Delaware, Montana, Nevada, Utah, Washington.
39-foot trailer	Michigan, New York, Vermont.
34-foot trailer	Arkansas, Iowa, Louisiana, New Hampshire, New Jersey, New Mexico, North Carolina, Oklahoma, Pennsylvania, Texas, Virginia, West Virginia, Wisconsin, Wyoming.
29-foot trailer	Alabama, Colorado, Connecticut, Indiana, Maine, Massachusetts, Minnesota, Missouri, North Dakota, Ohio, South Dakota.
24-ft. trailer	Florida, Idaho, Illinois, Kansas, Nebraska, Oregon, South Carolina, Tennessee.
22-foot trailer	District of Columbia, Mississippi.
19-foot trailer	Kentucky.
No restriction on length	Maryland.

* *Trailer lengths given above refer to the length between the center of the fifth-wheel pin to the extreme rear of the trailer.*

IMPORTANT WORK REQUIRES IMPORTANT MACHINERY

DONALDSON CLEANERS
take part in building
NEW YORK WORLD'S FAIR

Largest Diesel-powered fleet in East equipped with

DONALDSON *Oil-Washed* AIR CLEANERS

The Diesel-powered fleet of Mack trucks doing construction work on the New York World's Fair, numbers almost 200, the largest fleet of its kind in the East. Practically all of these trucks are equipped with CUMMINS DIESEL ENGINES, and protecting these power giants from the inroads of DUST is the Donaldson Oil-Washed-Air Cleaner. On such an important construction project delays are costly, and Donaldson Cleaners are indispensable in keeping motor operation smooth and constant.

This Cleaner has the same dust-protecting capacity with both Diesel and Gasoline Engines; and leading makers of agricultural, automotive and industrial power units install it regularly as standard equipment. The Donaldson Cleaner is individualized to fit each job. . . . Insist on DONALDSON OIL-WASHED-AIR CLEANERS when buying new trucks!

Mack truck in action at New York World's Fair. The Donaldson Cleaner dust-protects the Cummins Diesel used.

If you are having Crankcase troubles due to sludge, ice or acid in your Crankcase, write us for information on our Crankcase Ventilation System.

DONALDSON COMPANY, INC.
666 Pelham Street **St. Paul, Minnesota**

WE INVITE YOUR INQUIRY

All America . . . the nation-wide proving ground of the

CUMMINS DIESEL

supplies the ***Job-Test*** **for your protection**

CUMMINS DIESEL OWNERS WERE *first* WITH 1,000,000

DEMONSTRATING THAT THE CUMMINS DIESEL WAS PRACTICAL

A CUMMINS DIESEL OWNER WAS *first* WITH 13,891,598

DEMONSTRATING THE DEPENDABILITY AND LOW MAINTEN

A CUMMINS DIESEL OWNER WAS *first* WITH 49,000,000

DEMONSTRATING THE LONG LIFE OF THE CUMMINS DIESEL (FIRST

UMMINS DIESEL WNERS WERE *first* WITH 100,000,000

VERING EVERY LOAD AND ROAD CONDITION, BOTH ON

This is the JOB-TEST EVIDENCE back of the Cummins Diesel you are offered today as a replacement engine for your obsolete power or original equipment in your new truck.

CUMMINS ENGINE COMPANY, 1115 WILSON STREET, COLUMBUS, INDIANA

f Evidence

ection when you buy YOUR diesel!

0 miles of diesel-powered truck performance

ICAL AND ECONOMICAL FOR FLEET OPERATION

8 miles of diesel-powered truck performance in ONE FLEET

TEN ANCE OF THE CUMMINS DIESEL

0 miles of diesel-powered truck performance in ONE long-haul fleet operation

IRST ENGINE PURCHASED MAY, 1933)

0 miles of coast-to-coast diesel-powered truck operation

ON LONG HAULS AND SHORT

A

CUMMINS
Dependable
DIESEL
PIONEER IN MODERN DIESEL DEVELOPMENT

These Nationally-Known Trucks are offered with ***CUMMINS*** *dependable* ***DIESELS*** *as original or optional equipment:*

AUTOCAR
AVAILABLE
CORBITT
DART
EUCLID
FAGEOL
FWD
HENDRICKSON
HUG
INTERNATIONAL
KENWORTH
LINN
MACK
MARMON-HERRINGTON
MORELAND
OSHKOSH
STERLING
WALTER
WHITE

A "FLEET OWNER" Survey on TIRES

« Tire Experiences *in* 285 Fleets »

By H. Clay Fischer,
Editor, FLEET OWNER.

IT WAS a long time since we had a questionnaire on Tires, and in response to the many requests from fleet men for an up-to-date survey on the subject, a new questionnaire was published in our September issue, (Number 90), to which we received 285 replies.

Those 285 fleet men who were interested enough to participate, have by this time received their own personal copies of the *confidential* summary to the Tire questionnaire. You who did *not* work with us in this survey, will have to be satisfied with the *general* summary which we shall try to give you here—*minus*, of course, the "meaty," confidential data as to makes preferred, etc.

Average tire mileages obtained from different types of vehicles may not interest you very much. Average tire mileages realized from different *makes of tires* might be *more* interesting. However, to start the ball a-rolling, we first asked, *"What AVERAGE tire mileage do you get from NEW tires?"* . . . The word *"new"* was inserted—not because we think anyone uses second-hand tires, but so as *not* to include retreaded tires; a separate questionnaire on retreaded tires appearing in October—and the summarizing article appearing next month. Here's how the tire mileages seem to average up—averaging the averages and hoping it will mean something:

Light Trucks—On light trucks we worked out an average of 24,085 miles, taking all of the average mileages given—in different types of businesses and on different types of light vehicles. . . . If you are getting *more* than that, you should be more or less satisfied; if you are getting *less*, perhaps you should look into the matter.

Passenger-Cars—On passenger-cars we were able to work out an average of 23,323 miles per set of new tires. Frankly, we expected this figure to be higher—at least as high as the average for light trucks. Perhaps the fact that today's passenger-cars are driven at much higher speeds is responsible for the deficiency in mileage? . . . Personally, we get much more mileage than that out of a set of tires on our own car, but perhaps we are slowing down a bit, what with approaching forty (years, not miles) and being a yachtsman, instead of a motorist.

Heavy Trucks—The average which we worked out on heavy trucks was much greater than either of the two averages given so far—31,694 miles to be exact. Of course, we've seen individual cases where considerably more mileage has been gotten out of a set of tires. Operators get more mileage out of heavy truck tires for several reasons. Perhaps because they cost more in the first place, than their smaller brothers, and get better attention, so far as inflation is concerned. Of course, they are bigger, having more rubber on them and more plies inside of them, so they *should* last longer. However, *there* are the figures; if you can beat them, it's just swell; if not, better investigate.

Buses—Twenty operators of strictly bus fleets participated in this survey. A number of public utilities operating buses, in addition to trucks, also responded. There are also many school and other non-revenue buses represented in this survey, so you can take the following figure as being representative. . . . The average tire mileage on buses figured out as 45,500 miles. We hope you can beat it; much depends, of course, on the type of operation, the number of starts and stops, traffic congestion, etc., etc. Inter-city bus work is much different from municipal work, but averages of both types of operations were included in working out our average.

The *popular* averages, mentioned mostly, were: *Light Trucks:* 20, 25 and 30,000 miles. . . . *Heavy Trucks:* 20, 25, 30, 35 and 40,000 miles. . . . *Passenger-Cars:* 20, 25 and 30,000 miles. . . . *Buses:* On buses the "low" was 10,000 miles and the "high" was 90,000 miles.

(*Please turn to page* 30)

STUDEBAKER TRUCKS *for 1939*

—range up to 20,000 pounds gross rating!
(32,000 pounds gross train rating!)

•

—are built in both Cab-Forward and Standard Series Models!

•

—are operated in quantity by the world's largest fleet owners!

•

Sales and competent service available throughout United States and foreign countries. Consult your Studebaker dealer!

THE STUDEBAKER CORPORATION
TRUCK DIVISION
SOUTH BEND, INDIANA

A "FLEET OWNER" SURVEY *on* TIRE PRACTISE *(Continued)*

BETTER tire records COULD be kept by fleet operators. . . . Practically all of the large tire companies issue printed forms that are adaptable to fleet operation. Ask us about 'em—Ed.

Our next question asked, *"What is your PRINCIPAL cause of tire failure?"* . . . Although we asked the boys to check *one* only, several of them checked two or more. The answers revealed, *definitely* that more tires *wear* out, than "die" from any other cause; or, that rapid tread wear is the chief problem in many fleets. In fact 183 fleet operators mentioned "Tread Wear" as a principal cause of tire failure. . . . Although we have heard a lot about "Blow-Outs," only 35 fleet men checked that as a principal cause of tire failure. . . . We've also heard a lot of talk about "Sidewall Failure;" strange that only 24 operators should check that as a principal cause of tire failure. . . . "Tread-Cuts" and other kinds of tire cuts, including side-wall cuts, were mentioned by 84 fleet men as a principal cause of tire failure.

As we said before, several operators mentioned more than one principal cause. The following figures show only those causes mentioned *exclusively*, and their number of times: Tread-Wear—146; Sidewall Failure—12; Tread & Wall Cuts—52; Blow-Outs—24. . . . So, now that we know just what it is that causes our tires to wear out prematurely, it sounds very simple (and somewhat logical) to just pay a little more attention to those certain factors, and then sit back and watch our mileage increase. (More about this, later on in this article).

One good way to extend the life (and mileage) of your tires, is to change around wheel-positions of the various tires, so that, should one tire be wearing unduly in certain spots—as in cases of out-of-round brake drums, or misaligned front wheels, it may be possible to even-up such wear, by using the spottily-worn tires on different wheels, and pray to God that only the "high-spots" will wear, in their new locations. . . . At any rate, there must be *something* to this idea, for when we popped the question, *"Do you change around the wheel-positions of your tires, in order to increase mileage?"*, 189 fleet operators said "Yes"; 89 said "No"; and 7 did not answer the question.

We always thought that if oversized tires were used, better performance would be obtained, so far as tire life is concerned. We know that, for instance, if we wear heavy brogues of Scotch grain leather, with half-inch soles, not only will we be able to withstand the rigors of winter weather—snow, slush, etc., but we will get more "mileage," as well. . . . However, fleet men do not seem to follow the same line of reasoning with tires, for, in answer to the next question, *"When replacing tires with new, what size do you use?"*, only 48 operators report using oversized tires throughout the fleet. . . . 77 fleet men use oversized tires on certain jobs only, with standard sizes on the others. . . . And 157 fleet owners replace worn-out tires with standard sizes, using *no* oversizes. . . . 3 did not answer the question.

Of course, oversized tires cost more money, and maybe you won't get any more out of them, directly in proportion to what you pay for them. . . . But we think you will. In addition, they should provide a somewhat *safer* operation in bad cases of overloading—and who doesn't overload—once in a while, anyway?

Here's where we get to the *confidential* part of the survey; and here's where we hold out on you. We next asked, *"Please list the makes of tires you are now using."* . . . A total of 37 makes were mentioned. However, we shall not attempt to include them here. Most of the replies indicated that *several* makes of tires are being used in each fleet. Several of the answers simply stated "We use all standard makes."

Of course, we should not list the relative popularity of the various makes in this article. Such information is reserved only for those who participated in the survey. However, we have a few extra copies of our summary on hand, and will send them to any fleet operator who did not get one, provided he will fill *this* month's questionnaire out, and return it to us. When sending in this month's questionnaire, which is on page 51, just write across the bottom of it, *"Please send the Tire Summary."* . . . We'll be glad to oblige, and we will also send you the summary on Timing Gears and Chains, when that is made up; thus you will be getting two for one. We offer you this inducement, just to get you started participating, feeling that once you try it, you will never deny yourself this opportunity of cooperating in a very worth-while movement.

TREAD WEAR is given as the principal cause of tire failure by most fleet operators. . . . This graph gives you an idea of the relative tire wear on different types of roads. . . . Apply it to your own operation, and perhaps get "the answer" to your problem.—Ed.

And here is the most potent portion of this survey. We next asked, *"What make of tire, in*

(*Please turn to page* 34)

Mack sells Colonial Sand and Stone Company, Inc., of New York City

66 new Mack Trucks powered by Cummins Diesels

for New York City operation where the average daily runs are only 35 miles.

Colonial purchased 62 additional Cummins Diesels to replace their old gasoline engines. They now own a total of... 128

CUMMINS ENGINE CO., COLUMBUS, INDIANA

CUMMINS Dependable DIESEL

PIONEER IN MODERN DIESEL DEVELOPMENT

These new engines, and all other **Colonial Sand and Stone Company** *equipment, are protected with the*

DELUXE CLEAR-OIL

KEEPS YOUR ENGINE YOUNG

FILTER

DeLuxe Products Corporation, LaPorte, Indiana

Can Diesel cut operating your present

Before you try to answer that question, read what GM Diesel engines have to offer

WE HAVE too much at stake to make any rash claims.

So let's lay the facts before you.

What we have to offer is an engine which, power for power, is no bigger than your present gasoline engine.

It's a power plant that showed, by accurate tests on the General Motors Proving Ground, a fuel saving of 60%. That's based on a figure of 12¢ for fuel oil and 17¢ for gasoline.*

It's an engine with torque characteristics which cut down gear shifting in traffic and on hills.

It's an engine that saves money in short-haul or long-haul operation, if your trucks keep on the go with heavy loads.

And it's an engine backed up by a thorough installation engineering analysis, developed by General Motors and supplied to every dealer who handles this type of work.

Features that no other Diesel for trucks can offer

You probably have heard about the records of GM Diesel powered streamlined trains.

That's where we worked out the engineering principles which make these truck Diesels perform as no other Diesels have performed before.

*Recalculate this at the prices you pay for fuel oil and gasoline

engines costs on fleet?

They have the successful GM 2-cycle principle which delivers twice as much work per cylinder.

They use the unit injector and fuel pump, which eliminates high pressure feed lines.

They have licked the problem of objectionable exhaust odors by use of Uniflow scavenging—which gives cleaner and more complete combustion.

They are built by a combination of precision engineering and volume production—which makes service and repairs simple and keeps down the original manufacturing cost.

They are, in fact, little brothers of the engines which have rolled up ten million miles of spectacular performance on mainline railroad operation.

Final question—how big is your fleet?

At the present time we are in the process of setting up a nation-wide dealer organization. We're in position to give good service on parts anywhere in the United States. But from a maintenance standpoint, the most satisfactory results will be secured by fleets of ten trucks or over—large enough to operate their own service departments.

If you have a fleet of ten trucks or more—especially trucks engaged in heavy and continuous hauling—we're ready to say that these GM Diesel engines can save you money. Somewhere in your area, there's a dealer ready to talk turkey. If you do not know his name, write to the address below and we'll put you in touch with the right man.

GM DIESEL POWER

GENERAL MOTORS

Sales Corporation

DIESEL ENGINE DIVISION • Cleveland, Ohio

INFLATION is the most important single factor upon which tire life is dependent. . . . Of the fleets participating in this survey, 236 have their inflation done by their own men, in their own shops. . . . In 35 fleets, inflation and inspection are done by outside tire shops. . . . In 14 fleets, both practices are employed.

your opinion, is best for truck and bus work?". . . . Here, a total of 18 makes of tires were listed. Again, it is not possible to list the various makes in this article. It is interesting to note the fact that most of the answers to this one mentioned *one* make only. A few of them mentioned two or three makes. Some did not answer. . . . Again, if you want a copy of the summary which gives all of this confidention information, just re-read the preceding paragraph, and you'll know just how to get it—fleet operators, only.

Someone very ignorantly charged us with the statement that "Fleet operators don't buy their tires, but rent them on a mileage basis?". . . . So we next asked that question, directly and here is what we found: "Buy Tires Outright"—265; "Rent on Mileage Basis"—15; "Both"—5. Maybe our friend was referring to *bus* operators? . . . We noticed that most of the bus people who participated, reported that they rent their tires on a mileage basis. . . . Anyway, *that* question is settled, or seems to be.

Source of supply always being of interest, we next asked, *"What is your source of tire supply?"* . . . The answers were: Tire Wholesaler—132; Tire Manufacturer—72; Tire Retailer—43. . . . Thirty-six fleet operators gave answers including various of the above sources, or at least more than one. Two did not answer the question. . . . There's not much to comment on here, so let's get to the next question.

We asked, *"On what basis do you select new tires?"* . . . "Performance and Cost" came first, with 179 answers. Only 26 operators use the "Brand" or tradename as a basis in purchasing tires. And only 15 fleet men buy tires on the basis of "Low First-Cost," which is fortunate. "Dealer Service," considered important by many tire manufacturers, was only mentioned 6 times. In connection with this question, it is interesting to note that 53 more operators answered the question by mentioning *several* of the above factors as determining their tire selection. In fact, 32 of this group included "Dealer Service" as one of the many factors responsible for their choice of tires. . . . It seems that the reasons for the foregoing answers to this question are quite obvious. We always *did* believe that experience is the best teacher.

We are not going to stick *our* necks out with a discussion on the pros and cons of so-called "puncture-proof" tubes. All we did was to ask the question, *"Do you use puncture-proof tubes?"* . . . And all we are going to do is give you the answers, which were, "No"—210; "Yes"—38; "Some"—28; "No Answer"—9.

Let the next question enlighten you. We asked, *"If so, are they satisfactory, or not?"* The answers here were "Satisfactory"—50; "Unsatisfactory"—15; "Fair"—1. . . . As to why more operators are not using them, if they are so good, we don't know. Maybe the high first-cost is responsible? Maybe better roads and less flat tires are the deterrent factors? Frankly, we do not know. Ask your tire man; perhaps *he* can tell you.

Tire inflation and frequent tire inspection for nails, cuts, glass, etc., as we have often told you, is the *one* single preventive-maintenance operation on tires that is perhaps of more importance than any of the others. Who does it, in each fleet, is quite important, so we asked, *"Who does your tire inspection, inflation, etc.?"* . . . "Our own men" was the answer given by 236 fleet operators, who evidently have *some* kind of a tire department—at least we are sure that they have an air-compressor and a tire gauge. . . . "Tire dealers or other suppliers" was the answer given by 35 fleets. . . . And in 14 operations, this work is sometimes done by their own men, and sometimes on the outside by sources of supply.

IMPROPER matching of dual tires results in a loss of from 20 to 50 per cent in tread wear. . . . This is the WRONG way to mate them. The good one should be outside.

We are pleased that the answers came out this way. It shows, first, that our advice has been carefully followed by many fleet operators. It also shows that the air-compressor and tire-gauge people have a *real* market to shoot at, among the readers of this publication—but let's not get into the sales talk.

Next we asked, *"How often is tire inflation and/or inspection done?"* . . . The answers were,

(*Please turn to page* 57)

TAKE A TEST!

That's all Dodge asks..

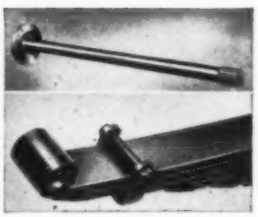
SEE HOW 1939 DODGE TRUCKS LEAD IN 5 VITALLY IMPORTANT WAYS

NEW LOWER PRICES!

Dodge 1½-Ton Standard Stake, 160" W.B., 12-foot body. Delivered at Detroit, including all Federal taxes, front bumper and spare wheel; state and local taxes, dual wheels and transportation, extra..... **$825.00**

CHECK!

For 1939, Dodge sets new high standards in the lowest-price field with bonderized (rust-proofed) cabs and bodies as well as sheet metal—makes Dodge finish stay bright longer, preserves the metal.



LOOK!

In new 1939 Dodge trucks, Amola steel, the new super-tough alloy, is used for axle shafts, springs and other vital parts. This advancement makes Dodge trucks last longer, cuts upkeep!

TRY!

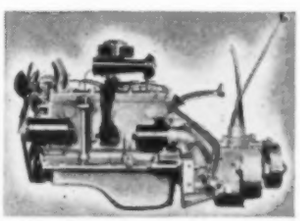
The genuine hydraulic brakes used on 1939 Dodge trucks are simply beyond imitation! They give quick, safe, sure stops, yet are especially designed to save tires and brake linings.

COMPARE!

Dodge trucks lead for 1939 with new streamlined styling, with beauty that is fresh and vigorous! New Dodge styling will help to build prestige and win customers for any business. Compare! You'll see at once that Dodge is "America's handsomest truck."

TEST!

6 sizes of L-head 6-cylinder gasoline engines, and the new Dodge-designed, Dodge-built full-diesel engine, give you the right size power plant in each truck model, for both gas and oil economy.

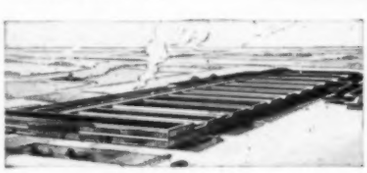


For 1939... New Complete Line ½–¾–1–1½–2–3-Ton Trucks

BEFORE you buy any truck, see and try a new Dodge. For 1939, Dodge offers a long list of important new features... new larger cabs, new panel and express bodies, new "V" type windshields that give wider vision and open for ventilation ...the list runs on and on. Add all these new things to all the quality advancements that have built Dodge reputation for money-saving performance and you have a truck that means real extra value for your truck dollar. Don't just take our word! Take a test. See your Dodge dealer.

Dependable

DODGE TRUCKS



GIANT NEW TRUCK PLANT... Dodge spent millions on this giant new plant to give you bigger truck values. Mammoth new machinery, miles of conveyors, modern methods, now combine to "streamline" truck production to a new peak of efficiency. No wonder your truck dollar buys top value in the new 1939 Dodge! Take a test, that's all Dodge asks. See your Dodge dealer today.

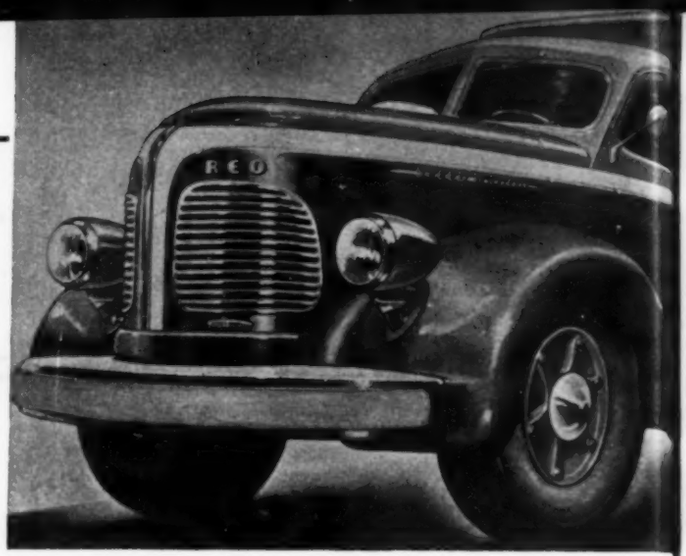
New Dodge ½-Ton Panel, 116" W. B. Standard equipment includes front and rear bumpers, 4 double-acting hydraulic shock absorbers, spare tire and tube, delivered at Detroit..... **$650**

New Dodge ½-Ton Pickup, 116" W.B. Standard equipment includes front bumper, 4 double-acting hydraulic shock absorbers, and spare tire, delivered at Detroit..... **$590**

Prices include Federal taxes; state and local taxes, transportation, extra.

REO *offers for* 1939:

- *New Streamlined Styling*
- *Increased Load-Space*
- *Interchangeability of Units*



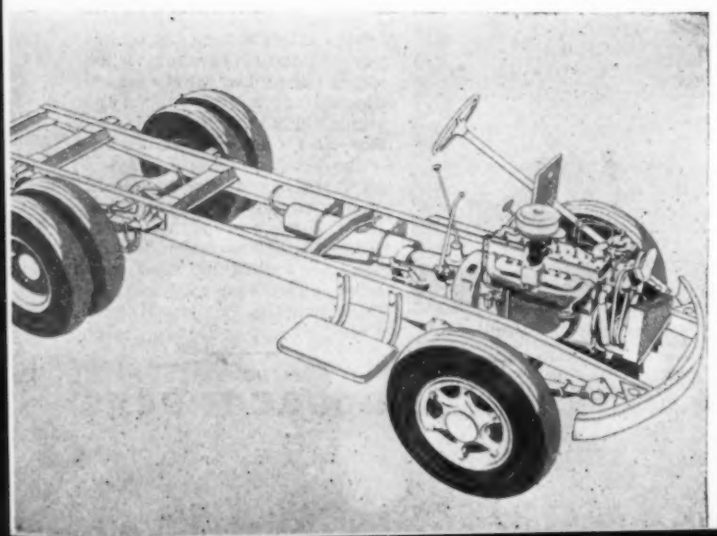
REO MOTOR Car Company, Lansing, Michigan, enters the 1939 truck field with a brand-new line of conventional truck models featuring new, advanced streamlined styling, increased loading-space gained by moving the engines forward, and a complete interchangeability of major mechanical units by means of which the new Reos can be practically "custom-built" to meet pretty nearly any hauling requirement.

The advanced styling is readily apparent by examining the upper photograph on this page. Samples of these new units were exhibited at the recent National Motor Truck Show in New York, where many truck men readily admitted that their styling was new and different, as well as eye-arresting and attractive.

The increased loading-space in the new Reos has been achieved by moving the engines further forward over the front axle—thus gaining certain of the advantages of cab-over-engine design, without the accompanying high cost characteristic of this type of construction.

Further, Reo engineers claim that their new design offers more accessibility than a comparative cab-over-engine design, without sacrificing beauty. It is declared that the beauty of these new models is even greater than if a cab-over-engine design were used.

Complete interchangeability of the major mechanical units in the new Reo truck models is another outstanding feature. So many of the important units—such as engine, front axle, rear axle, transmission, springs, etc., are interchangeable throughout the line, that it is almost possible to "custom-build" a truck to meet *anyone's* requirements, without building up a high cost—simply by using the standardized units in the new Reo line.



For example, five different models are singled out by Reo as filling the requirements of the volume-production demand. These five models are made up, using four different engines, three different rear axles (with 2-speed axles optional), and three basic frames. Many of the other units are interchangeable, too, each of which, however, is amply large and strong for the particular capacity of the truck in which it is used.

The five new Reo truck models are known as Models 11, 12, 14, 16, and 18. All of them use the new Timken "3 for 1" rear axles, in which straight bevel-gear drive, 2-speed drive, or double-reduction drive is optional and interchangeable. (This axle was completely illustrated and described in our September, 1938 issue, on page 36).

The new Reos range in gross weight ratings from 11,000 to 18,000 pounds. In fact, each model designation tells its own story—Model 11 is the 11,000-pound job; model 12 is the 12,000-pound job, and so on. Because of the closeness of the "spread" in these various models, it has been possible, Reo engineers declare, to offer *complete* interchangeability of *all* mechanical units throughout the entire line, to meet every individual requirement economically.

From the foregoing, it would seem that you can go to the Reo factory (or to the Reo dealer in your territory) and select a Reo truck with *any* of the various units on hand. You can take, it would seem, the longest wheelbase with the smallest engine, the heaviest clutch, the biggest or the smallest rear axle, etc. All of them are completely interchangeable—they will fit in any combination of chassis that you care to make up, but Reo's engineers and factory representatives will be there to see that you don't concoct some impractical combination—even if you *think* it is what you want.

Of course, Reo's pre-selected assortment of the five different "models" should fill the bill in most cases. All of them feature such things as Reo's high-torque "Gold Crown" engines with chrome-nickel cylinder blocks, lo-ex alloy pistons, rifle-drilled connecting-rods, 7-bearing crankshafts, oil-filters and air-cleaners, full-pressure lubrication and large bearing areas.

All of the new Reos come with either 4 or 5-speed transmissions designed for truck service and interchangeable on one standard flywheel housing. You already know about the rear axles. Stronger frames, having 9-inch depth and two basic rail lengths provide wheelbases from 120 to 220 inches.

In the new Reos the weight is ideally balanced on all tires to assure maximum tire economy. Load space

(*Please turn to page* 59)

"Say—we couldn't get along without BRUNNER AIR!"

IT'S OUR STAR ALL-'ROUND PERFORMER

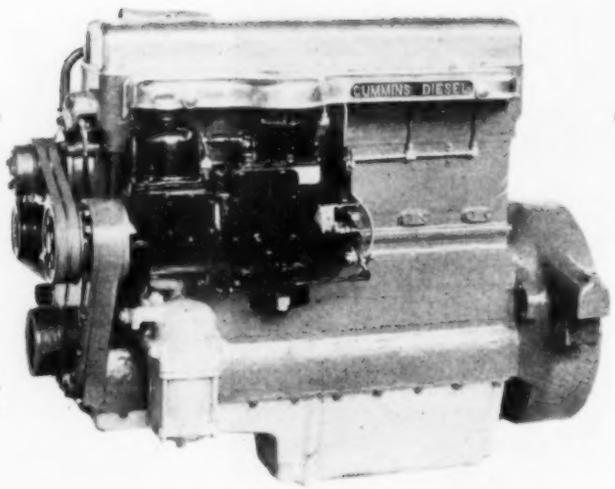
Here's *flexible* power that is quickly adapted to all kinds of jobs throughout the shop—indispensable in heavy-duty maintenance service on fleets large and small.

Besides the common pneumatic chores—tire inflation, greasing, oiling springs, motor cleaning—a Brunner compressor provides ample air for spray painting, pneumatic hoists and hammers, air doors—in fact few are the services where air cannot lend a helping, efficient hand.

In large shops, multiple Brunner installations are proving a short-cut to economical maintenance . . . The Brunner line includes single stage models from ¼ to 3 H. P.; two-stage models from ¾ to 7½ H. P. You can quickly figure the Brunner model best suited to your needs by referring to the Brunner Air Manual and Catalog. It's free on request. Brunner Manufacturing Company, Utica, N. Y., U. S. A.

- ★ GREASING
- ★ TIRE INFLATION
- ★ MOTOR CLEANING
- ★ SPRAY PAINTING
- ★ HOISTS
- ★ GENERAL SHOP USE

THE SYMBOL OF BRUNNER DEPENDABILITY



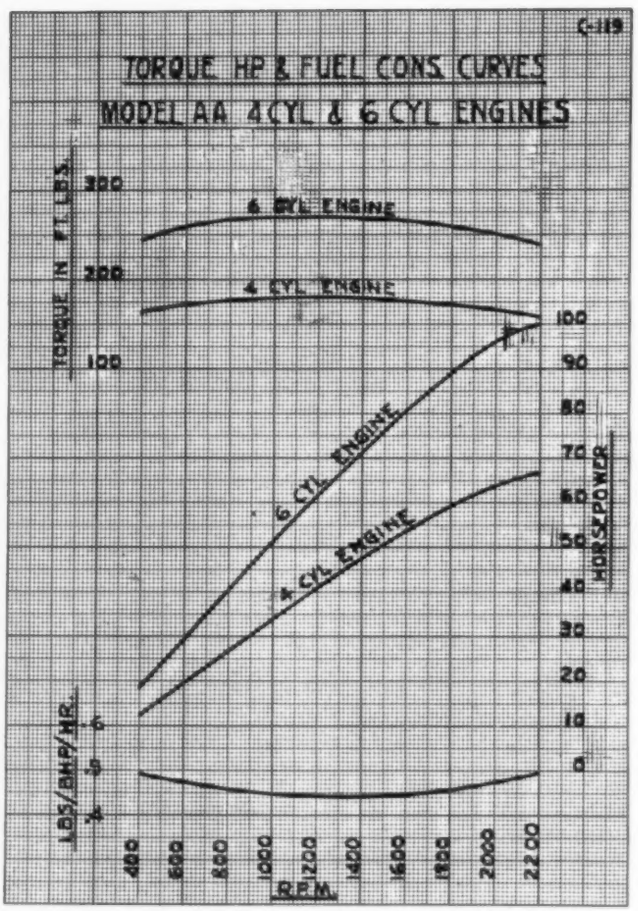
Cummins Offers Two Small Diesel Engines

TWO NEW and smaller Diesel engines are now offered by Cummins Engine Company, Columbus, Ind. Both have the same bore and stroke (4" x 5"), one being a 4-cylinder job; the other a 6-cylinder engine. The same basic design as used in the larger Cummins engines has been followed, including the over-head valves, the Cummins fuel-injection system and injectors, and other features characteristic of this manufacturer's product.

These new engines are called the "Model AA-400" and the "Model AA-600," these designations applying to the 4 and 6-cylinder jobs, respectively. The general specifications are as follows:

Model AA-400: Bore and stroke 4" x 5"; four cylinders; piston displacement, 251 cu. in.; 66 h.p. at 2,200 r.p.m. The horsepower and torque ratings at various engine speeds are shown in the chart accompanying. Net weight, complete, is 1,070 pounds.

Model AA-600: The fuel-pump side of this new 6-cylinder Cummins Diesel is illustrated at the top of this page. Bore and stroke are also 4" x 5". Piston displacement is 377 cu. in., and the engine develops 100 h.p. at 2,200 r.p.m. Horsepower and torque ratings are also shown in the chart accompanying. The net weight of this engine is 1,310 pounds, complete with accessories.



Standard equipment on both of these engines includes 2 air-cleaners of the oil-bath type; air-compressor; hand-crank; idling control device; fuel-oil filter; lubricating-oil filter; 200-watt, 12-volt generator; fuel-oil and lubricating-oil pressure gauges; 12-volt starting motor; push-button type starting switch; thermostat, with water by-pass; and fuel-oil priming pump.

All Cummins Diesel engines, including these two new ones, are equipped with the Cummins-patented fuel injection system, which consists of one *master* fuel-oil distributing unit mounted on the side of the engine (as shown above) and a mechanically-operated injector for each cylinder.

Like all Cummins Diesel engines, the new models are compression-ignition engines, in which air (taken in on the intake stroke) is compressed, thus attaining high temperature. Into this heated air the fuel is mechanically injected, ignition taking place automatically, without mechanical or electrical sparking devices.

The following is the manufacturer's description of the Cummins Diesel principles: "By means of the

(*Please turn to page* 48)

MAINTENANCE MEN!

PACKARD OFFERS YOUR SERVICE ORGANIZATION THIS MANUAL OF COMPLETE RE-WIRING INSTRUCTIONS

•

75 ILLUSTRATIONS
24 PAGES

GREATER SAFETY— INCREASED PERFORMANCE— THROUGH BETTER ELECTRICAL SERVICE

The Certified Re-Wiring Manual, "Copper Nerves," is Packard's latest contribution to the field of automotive servicing. It contains complete information on voltage drop in the electrical circuits, causes of defective and unsatisfactory wiring, proper checking procedure and proper replacement procedure. Other practical service material is contained in its 24 pages, and the use of charts, tables and illustrations makes it easy to understand and remember.

Packard is able to offer this Manual FREE to fleet service organizations because of the widespread acceptance of Packard Cable by maintenance men throughout the country. Those who have discovered that there is more MPR—Miles Per Replacement—in Packard Cable will find in it a means to even greater economy.

AND REMEMBER
THERE'S *MORE*
MPR
(Miles Per Replacement)
IN PACKARD 440

Packard
REG. U.S. PAT. OFF.
TRADE MARK

CERTIFIED RE-WIRING

Packard Electric Division
General Motors Corporation
Warren, Ohio

Please send us the Certified Re-Wiring Manual, "Copper Nerves," for use in our service organization.

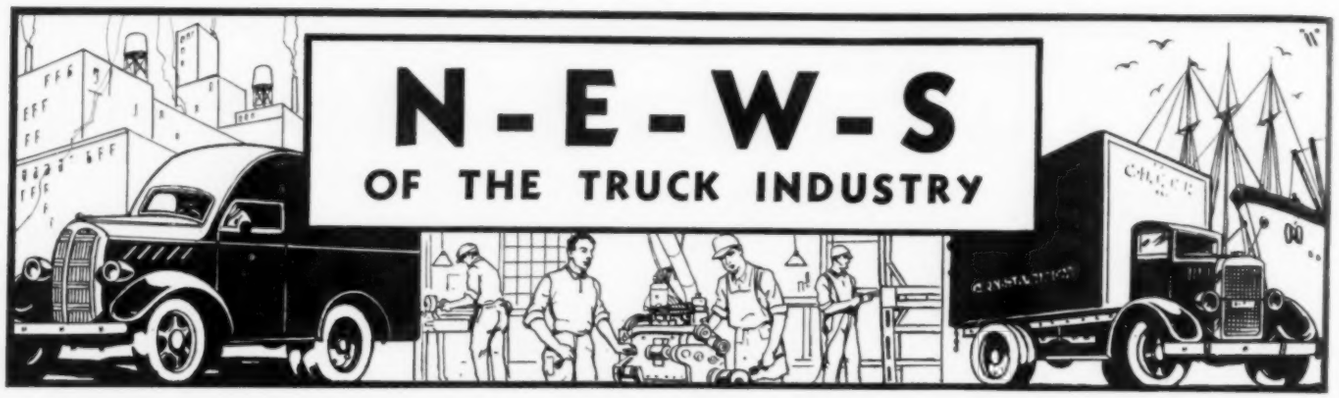
NAME _____ POSITION _____

FIRM NAME _____

STREET ADDRESS _____

CITY _____ STATE _____

NAME OF PACKARD JOBBER _____



W. J. O'Neil Now Dodge President

W. J. O'NEIL has recently become president and general manager of the Dodge Brothers Division of Chrysler Corporation, according to announcement made by K. T. Keller, president of Chrysler Corporation. . . . Mr. O'Neil has been active in the management of the Dodge Division since Chrysler Corporation bought the Dodge properties in 1928. He put the Dodge plants on a modern production basis. . . . Under his leadership the Dodge Division has grown into one of the most important parts of the Corporation, machining and assembling many parts for all the Corporation's products, as well as manufacturing hundreds of thousands of Dodge cars and trucks each year. . . . Our best to you, Mr. O'Neil!

•

I.C.C. Postpones Private Carrier Hearings

FINDING that "good cause" was expressed in the National Council of Private Motor Truck Owners' petition for postponement of the hearings under MC-3, the Interstate Commerce Commission agreed recently to postpone such hearings until February 20, 1939.

•

General Tire Head Sees Better Business

WILLIAM O'NEIL, president of General Tire & Rubber Company, made the following statement in part, regarding next year's business conditions: "General business should show steady improvement in 1939. There is a growing demand for all classes of merchandise. Shelves are bare and consumers need goods of various kinds. . . . Bad politics can slow down the demand for goods, but cannot permanently dam up this demand."

•

Chevrolet November Sales Over 1937

CHEVROLET dealers sold 76,938 new cars and trucks at retail during the month of November, W. E. Holler, general sales manager, announced recently. . . . This is an increase of 4,455 units over sales for the same month in 1937, Mr. Holler said. . . . The last 10 days of the month, Chevrolet's figures indicate, looked particularly good in comparison with the corresponding period last year. Sales in that period were 25,045, as against 20,310 in the final 10 days of November, 1937.

N. Y. Trucker Buys 30 G. M. Diesels

GENERAL Motors Truck Company, New York branch, announces that Fullerton Trucking Company, New York City, has recently placed an order for 30 four-cylinder GMC trucks, to be powered with the new G. M. Diesel engines. . . . These are known as truck models No. 851. . . . The trucks will be used initially for hauling brick and other building materials, in a new housing project.

•

Giant New Truck Plant Announced by Dodge

DODGE Truck Division announces the completion of a mammoth new truck factory, as part of a six-million-dollar commercial car and truck manufacturing and sales program. . . . The plant, illustrated, will be exclusively devoted to the building of

commercial vehicles, ranging from half-ton to 3-ton capacities. . . . It has a total floor space of 693,163 sq. ft., and occupies 49 acres of ground, located northwest of Detroit. . . . Normal capacity will be 700 trucks per day. . . . Needless to say, everything in and about it is thoroughly modern.

•

Orders 20 More Diesel-Electric Buses

SURFACE Transportation Company, New York, N. Y., recently placed an order for 20 more Twin Coach buses, powered by Hercules Diesel engines, operating through electric drive. . . . The total number of buses of this type operated by Surface Transportation Company is thus brought to 41 units.

•

Handles "Cemcalloy" Drums in N. Y.

THE U. S. Tire Supply Company, Inc., 675 Eleventh Ave., New York, N. Y., have recently been appointed distributors of "Cemcalloy" Brake Drums for the New York Metropoliton area, according to Louis Bond, general manger of Christiana Machine Company, Christiana, Pa., the manufacturers.

Roy Fruehauf Promoted at Freuhauf

IN LINE with the company's current expansion program, Harvey C. Fruehauf president of Fruehauf Trailer Company, announces the promotion of Roy A. Fruehauf to the position of vice-president and director of sales. . . . Prior to the assumption of his new duties, Mr. Roy Fruehauf had served as vice-president in charge of Western operations and under his supervision Fruehauf sales in the west were substantially increased. . . . As Freuhauf's sales director, Roy Freuhauf plans to spend considerable time in the field in order to keep all sales offices keyed to the aggressive program which the company is launching.

•

Begins 20th Year With Brunner Mfg. Co.

"THIS is just the beginning," says Clayton E. Burlingame, who now starts his 20th year of service with the Brunner Manufacturing Co., Utica, N. Y., as sales representative for New York State, excepting Metropolitan New York. . . . Mr. Burlingame joined the Brunner organization in November 1919, covering Atlanta, Ga., and later being transferred to "missionary" service in the provinces of Ontario and Quebec. . . . For the past several years, however, "Clate" has concentrated on the New York State terirtory.

•

To Represent Mack Trucks Abroad

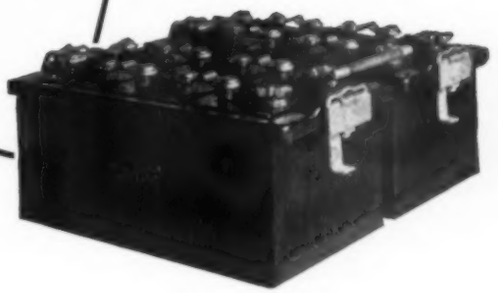
ACCORDING to recent announcement John F. Mauro and Ed. G. Willems have left for Europe and the Far East, respectively, on their regular trips representing Mack Trucks Inc. . . . During their extensive tours, both Mr. Mauro and Mr. Willems will contact many customers and prospects and will call on and establish distributorships.

•

Watson Fruehauf District Sales Manager

ROY A. FRUEHAUF, vice-president and director of sales for the Fruehauf Trailer Company, announces the appointment, effective immediately, of E. A. Watson as Detroit district sales manager. Mr. Watson succeeds George W. Thomas; Otto F. Neumann continues as Detroit branch manager. Mr. Watson has been with the Fruehauf Trailer Company for twenty years. He was at one time service manager of the company.

California Motor Express Ltd. operates 15 Diesel-powered trucks cranked by Exide Batteries



WITH this fine fleet of 15 Diesel-powered trucks, California Motor Express Ltd. offers overnight express service between the San Francisco Bay district and Los Angeles and Southern California. The total yearly mileage of the fleet is 1,500,000, and the Exide Batteries are averaging in excess of 250,000 miles each.

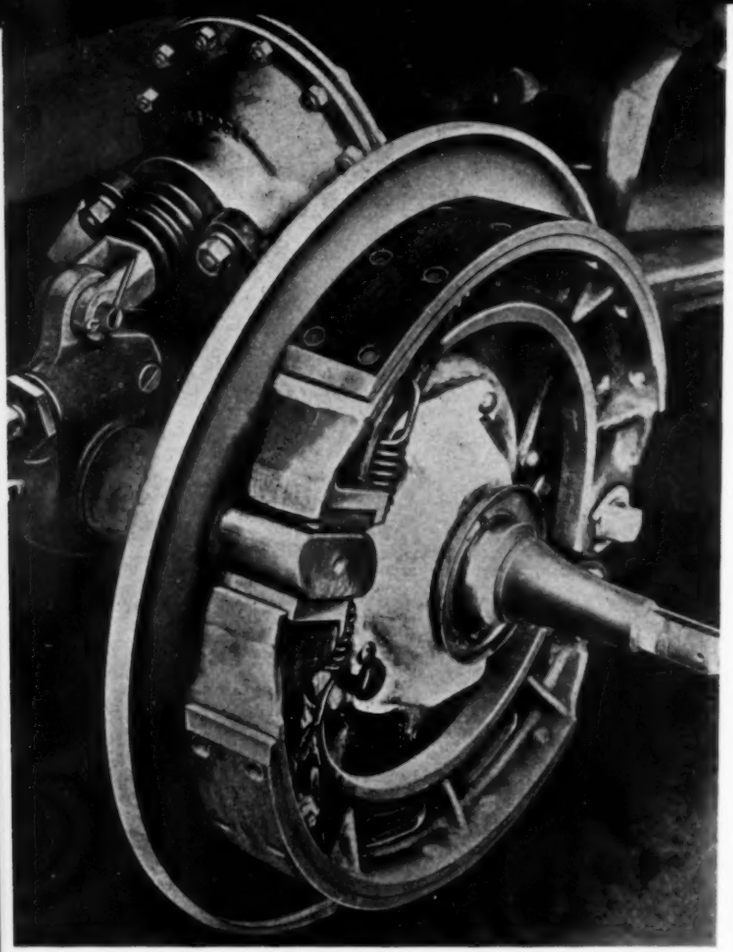
This is a good record for batteries in such exacting service, for cranking Diesel engines requires batteries that can take a lot of wear and tear while delivering plenty of power. That is what Exides are built to do—and it goes far to explain why leading operators of Diesel-powered equipment depend so largely on Exide.

The Exides for this service have the high voltage necessary for high cranking speeds at low temperatures, plus the dependability and economy you always expect of an Exide. There is an Exide for every make and type of Diesel engine, from the smallest to the largest. Write for the illustrated booklet, "Electric Cranking of Diesels." It is free.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia

The World's Largest Manufacturers of Storage Batteries for Every Purpose

Exide Batteries of Canada, Limited, Toronto



AIR BRAKES *for* LIGHT TRUCKS

•

EATON offers new Heavy-Duty Air-Brake Conversion "Kits" for Ford, Chevrolet and two GMC truck models. . . . Assemblies include new Backing-Plates and Brake-Shoe Assemblies, in addition to the air-brake mechanisms.

EATON PRODUCTS, Inc., Cleveland, Ohio, announces a new line of heavy-duty air-brake conversion "kits" for Ford trucks, for Chevrolet trucks and for GMC Trucks, Models 733 and T-16.

These air-brake conversion kits include new brake-assembly backing-plates, new heavy-duty brake-shoe assemblies, air-chamber mounting-brackets, and the corresponding Bendix-Westinghouse air-brake system parts. In other words, Eaton is manufacturing a replacement brake-assembly for the trucks mentioned, actuated by Bendix-Westinghouse equipment.

The complete units, in "kit" form, are supplied by Bendix-Westinghouse distributors. The upper illustration on this page shows the new brake-assembly, consisting of two heavy-duty, air-operated brake shoes and a new, heavy-duty cam assembly. In making the replacement using this outfit, the original-equipment axles are retained, it being necessary only to remove the original backing-plate and brake assembly, and to substitute the new ones. Mounting-brackets, for accommodating the air-chambers, are also included in the "kit" made by Eaton.

The upper illustration shows a typical front brake, backing-plate and air-chamber assembly. The air-chamber pushes directly on the slack-adjuster, which is mounted on the splines of the brake cam-shaft. Heavy-gauge material is used in the new backing-plates, to insure a rigid mounting for the new brakes.

Attention is called to the heavy cast shoes with hardened steel wearing-plates, to resist cam-wear. Eccentric anchor-pins provide a simple adjustment at the anchor-pin ends of the shoes. The slack-adjuster provides quick adjustment for the cam ends of the brake shoes.

In the lower illustration on this page is shown a typical air-chamber mounting as used on all Eaton rear axle brake conversions. The air-chamber mounting bracket (supplied by Eaton) is mounted directly on the axle housing, with the air-chamber pushing directly on the slack-adjuster, which is attached to the brake cam-shaft by means of splines.

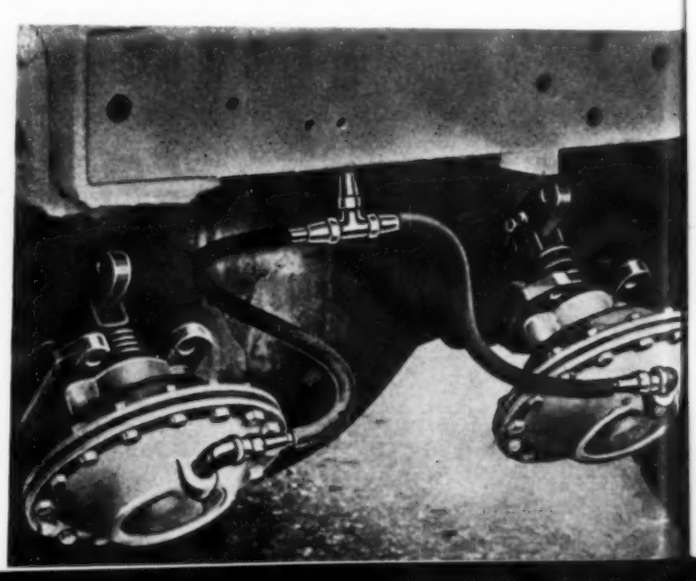
Attention is called to the heavy-gauge material used for the backing-plates, to insure rigid mounting, as before stated. As in the front brakes, eccentric anchor-pins provide a simple adjustment at the anchor-pin ends of the shoes, while the slack-adjuster provides quick adjustment for the cam ends of the brake shoes.

Eaton engineers point out that although the standard equipment brakes are adequate under normal operating conditions, there has developed a demand for special heavy-duty brakes and power-brake equipment among operators of Ford, Chevrolet and other similar-sized trucks which often carry loads greatly in excess of their ratings, through dense city traffic or over hilly, mountainous routes.

This seems particularly true, in the cases of tractor-trailer units and large buses, and it goes without saying that adequate braking power is essential to economical operation, the maintenance of schedules, and a minimum of road breakdowns.

Eaton's engineers, therefore, in collaboration with engineers of the power-brake equipment manufacturers, have developed these heavy-duty brake-conversion

(*Please turn to page* 48)



IN A TAPERED ROLLER BEARING...YOU WANT:

❶ CAPACITY

The Tyson *Cageless* Bearing gives *30% more capacity* than conventional cage-type roller bearings.

❷ LONG LIFE

The Tyson *Cageless* Bearing has *double the life* of cage-type bearings, size for size.

❸ RIGIDITY

The Tyson *Cageless* Bearing has substantially greater rigidity, so necessary in gear mountings.

The extra capacity and longer life of Tyson *Cageless* Bearings mean less-frequent replacement and lower bearing costs. Ask your jobber, or write us.

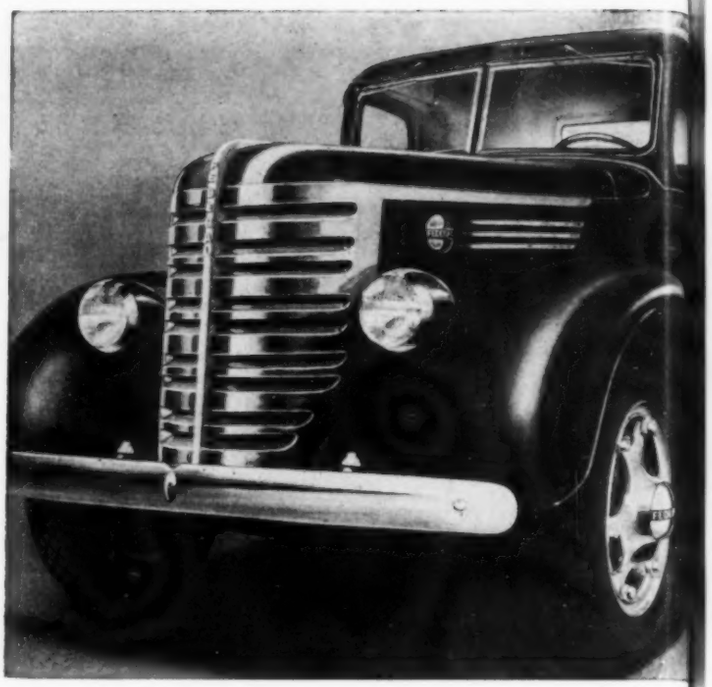
Cageless FOR HARD SERVICE *Cage-type* FOR REGULAR SERVICE

Tyson

TYSON ROLLER BEARING CORPORATION, MASSILLON, OHIO

FEDERAL Offers for 1939:

- *New Heavy-Duty Line*
- *C.O.E. and Conventional Jobs*
- *Streamlined Style Continued*



THE COMPLETE line of trucks for 1939, announced by the Federal Motor Truck Company of Detroit, Mich., includes several models which make their maiden appearance this year. These models are of the "super" heavy-duty type, ranging in capacity from 6 to 8-tons. They were exhibited for the first time at the National Motor Truck Show, held recently in New York City.

In addition there is also the line of lighter Federal models from ¾ to 5-ton capacity, another group of heavy-duty models from 4 to 7½-tons in size, and a group of cab-over-engine trucks carrying ratings of 1½ to 5-tons. Completing the line are ten 6-wheel models in conventional and cab-over-engine types from 4 to 8-tons capacity.

The entire line, with the exception of the heavy-duty and cab-over-engine models, again features the striking streamlined front-end styling illustrated above, originated for Federal by Henry Dreyfuss, noted industrial designer. The cab-over-engine models are truly functional in their design and also have a distinctive grille ornamentation as their identifying feature.

The new "super" heavy-duty Models 62, 63, 65 and 66 present a front-end of massive sturdy beauty in keeping with the character of trucks of this size and capacity. The extra heavy radiator shell, grille and bumper, all of which are chromium plated, serve to emphasize the strength that is built into these trucks.

These models vary in wheelbase from 141" to 211" to accommodate bodies of up to 18' in length. Models 62 and 65, weighing 10,400 and 11,300 pounds respectively, are powered with a Continental 22R 6-cylinder, valve-in-head engine of 4½" bore by 5¼" stroke, developing 138 horsepower. This engine has a 7-bearing crankshaft of heat-treated, chrome vanadium steel. Delco-Remy 12-volt, dual ignition is employed with two heavy-duty air-cooled bus-type coils and two sets of spark plugs.

Axles, front and rear, are Timken. The rear axles are of the double-reduction type, the No. 76746W being used on the Model 62 and the 79733W on the Model 65. Both models are equipped with a Clark 326VO overdrive five-speed transmission and Westinghouse air brakes are standard equipment.

Other mechanical features common to Models 62 and 65 are a 10-3/16" pressed steel frame, W. C. Lipe 14" single dry-plate clutch, roller-bearing universal joints, radius rods, and 50-gallon side-mounted gasoline tank with outside filler.

The general specifications of Models 63 and 66 are the same as those of Models 62 and 65 with the exception of the engine, which is a 6SRK Waukesha, 6-cylinder, 7-bearing L-head type of 4⅝" bore x 5⅛" stroke, developing 115 horsepower.

Trucks of the smaller sizes, in conventional and cab-over-engine types, from ¾ to 5-ton capacity are all powered with 6-cylinder Hercules engines, designed especially for truck service. All of these engines have 2½", 7-bearing crankshafts with electrically-hardened bearing surfaces, removable cadmium bearings, full-length water-jackets, gear-driven water pumps and silent helical timing gears.

Deep "fish-belly type" frames are used in all of these models. The models in this group are all equipped with 4-speed transmissions, except those carrying a 3 to 4½-ton and 3 to 5-ton rating, which have 5-speed transmissions. All have Timken front axles and Timken full-floating, bevel-drive rear axles.

(*Please turn to page* 48)

Atlas was a piker

- - compared to the lifting power of a HEIN-WERNER HYDRAULIC JACK

7 ton capacity model, shown above, has low of 8"...Hydraulic lift, 5¼"...Extension screw 3" ...High of 16¼"...Wt. 25 lbs.

FEW MODELS ENGINEERED TO DO THE WORK OF MANY

HEIN-WERNER *hydraulic* **JACKS**

Atlas, a greek myth, was *supposed* to support the heavens —but the story of his strength was only a myth. In contrast—the lifting power of a Hein-Werner Hydraulic Jack is a *proven fact.*

Before leaving the factory, all H-W truck jacks are tested at 1½ times their rated capacity. These jacks are compact, powerful and SAFE—in addition to being *built right* and *priced right.*

Complete line includes the "Bumper-Lift" and the "Bullet" 1½ ton capacity jacks for passenger cars...Also 2 ton "Light Truck Special," 3, 5 and 7 ton capacity jacks for trucks, and 12 and 20 ton jacks for trucks and buses . . . And a complete line of FLOOR JACKS—1½, 2, 3 and 4 ton capacity . . . Ask your jobber or write us for 1939 prices and details on complete line.

HEIN-WERNER MOTOR PARTS CORP.
Waukesha, Wisconsin

LETTERS TO THE EDITOR

RE RECIPROCAL BUYING

● *My dear Mr. Fischer:* Under the attack on business by the present administration, we manufacturers like to feel that we are martyrs. We know the attack is unjustified, in general. Government, however, has uncovered some abuses which are real enough to justify action in some cases.

One of these abuses which as yet has not been the subject of regulation but which will and perhaps should be, is that of reciprocal buying. This exploded theory is continued only because of its age, not because anyone in industry finds it a satisfactory method of placing business.

Industry, at great expense, sets up a purchasing department, an inspection department and an engineering department, to produce material of proper price and quality. After having done this they put in a reciprocal relations department who override the decisions of the buyer, the inspector and the engineer, and place business on a reciprocity basis. This results in frequent strained industrial relations since no one can buy in a volume to satisfy the reciprocator. Not only that, but the distribution is never fair from the seller's point of view.

Reciprocal buying results in higher prices since the reciprocator cannot get the best price available. It results in lower quality since the reciprocator cannot insist on quality. It results in lack of standardization which enormously increases the cost of upkeep.

I can see the joy with which government officials might pounce on this industrial foible to show how incompetent is the management of American business. With that proof the New Deal can show it is necessary for government to guide, direct and protect industry, and thus only can it be kept solvent. As a matter of fact, who can show that government is not right in such conclusions? Result: One law, a million new jobs and a billion in new taxes.

The worst of it is that in this case the government would have a perfectly clear case to prove its point. No one could take the untenable position that reciprocal buying is anything but asinine and wasteful. However, in the hands of governmental regulation for its elimination, a waste will be turned into regimentation from which industry perhaps can never recover.—*J. F. Lincoln, President, The Lincoln Electric Co., Cleveland, Ohio.*

●

HEATER ADVICE

● *Dear Mr. Fischer:* I noticed in the November issue of FLEET OWNER, in the Trouble Shooters' Department, your answer to a question from one of your readers on heating truck and trailer bodies. This appeared on page 35.

In conection with our study of truck refrigeration and air conditioning, we have had occasion to install a considerable number of the large-capacity, bus-type heaters in insulated truck and trailer bodies; also in van-type bodies, for the purpose of preserving perishable material. This type of heater seems to be ideally suited for this purpose.

In the larger type of bodies it is customary to use two heaters, one in the rear and the other in the front corner. In some cases these have been mounted low and in other cases at the top, depending on the type of material carried. These heaters are connected above and below the pump of the motor, using a heavy type rubber hose to connect them.—*E. O. Bodkin, Advertising Manager, McCord Radiator & Mfg. Co., Detroit, Mich.*

●

IS OUR FACE RED!

● *Dear Mr. Fischer:* I enjoy reading your magazine, FLEET OWNER, from month to month, and find that some of the articles are very helpful.

However, I have a criticism to offer. I believe that it would constitute constructive criticism to suggest to your photographer that a little more care could be taken in your illustrative work.

I have reference to one picture in particular, that on page 29 of the November 1938 issue, in connection with the article on Power Brakes. The illustration depicts a mechanic lying under a truck, obviously in a garage, with a cigarette in his mouth.

This might have a serious effect on the safety-mindedness of those who read the article.—*T. R. Leadbeater, Traffic Manager, Larsen Baking Company, Inc., Brooklyn, N. Y.*

Dear Mr. Leadbeater: You are quite correct, although we do not fear that anyone will get the idea that it is safe to smoke in a garage. We are quite pleased to note that even the little details are noticed by our readers. Frankly, although we handled the picture several times, we were too busy looking at the brake assembly, to notice the cigarette.—*H. C. F.*

●

DRIVER-TEST MANUAL WANTED

● *Dear Mr. Fischer:* I have been reading FLEET OWNER for the past year or so, which is handed to me by the manager of the firm in which I am employed. I find it to be a highly interesting and instructive magazine, and follow with great interest your articles on trucks and highway safety.

The Province of British Columbia is adopting a policy of compulsory motor vehicle and also motor vehicle driver inspection. I do not know at present how rigid the driver's physical test, or mechanical inspection of the vehicle will be.

I am sending you a copy of our Motor Vehicle Drivers' Manual, issued by The Provincial Government. I feel that, although this is a step in the right direction, and certainly is better than nothing, that there must be a better method of testing a driver's knowledge, than some of the questions contained in this book.

If you have knowledge of a more suitable book than this one, I would certainly be interested in seeing a copy. Here's hoping for bigger and better safety campaigns and "more power" to FLEET OWNER.—*J. A. Culpepper, 45 Broadway, E., Vancouver, B. C., Canada.*

●

"MOST HELPFUL"

● *To the Editor:* I have been reading and enjoying your monthly magazine, FLEET OWNER, for the past two or three years, and must say that I find it most helpful.—*S. L. Dill, 3rd., Master Mechanic, City of New Bern Garage, New Bern, N. C.*

"Reckon I put tew much volatility in thet batch!"

THERE'S nothing as dramatic as an exploding moonshine still to tell you that the gasoline you use in your trucks or buses is too volatile or not volatile enough. There is plenty of practical evidence in the way those trucks and buses run.

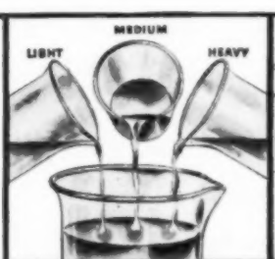
When gasoline does not have enough volatile fractions, or light ends, it shows up in slow starting and repeated choking, resulting in crankcase oil dilution and poor mileage. The superabundance of heavy ends in such gasoline also contributes to fuming and obnoxious exhaust odors.

When gasoline has too many highly volatile fractions, it causes vapor lock and poor mileage, the latter due to excessive evaporation from gas tank and carburetor vents.

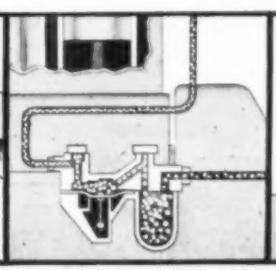
How can you be sure of avoiding both these extremes? By buying gasoline with balanced volatility—enough light ends or fractions for quick, easy starting, and enough medium and heavy ends to supply the power for sustained economical operation. The best way to be sure of getting this kind of gasoline is to buy from a reputable oil refiner or marketer. When you do, you'll usually find other advantages in the same gasoline—correct vapor pressure, low gum content and high anti-knock value.

If you have any questions on bus or truck fuels and their specifications or characteristics, write or get in touch with the Ethyl Gasoline Corporation, Chrysler Building, New York, N. Y., manufacturers of anti-knock fluids used by oil companies to improve gasolines.

4 Rules For Good Gasoline

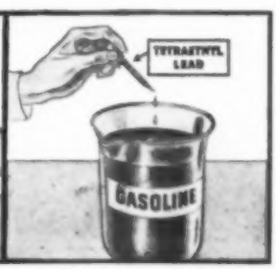


VOLATILITY should be balanced, for full power and best economy.



VAPOR PRESSURE should be adjusted to meet operating conditions.

GUM CONTENT should not exceed ¼ of a gram (4 small drops) per gallon.



ANTI-KNOCK VALUE should be high, of at least 68 octane number.

THE BETTER THE GASOLINE THE BETTER THE PERFORMANCE

Air-Brake Conversions

(*Continued from page* 42)

"kits," which are classified as being of the "two-shoe, rigid-anchor, non-servo, constant-rise cam construction" type. This type of brake is especially adapted to air or other power.

Eaton brake conversions can be applied to the above-mentioned makes of trucks, whether equipped with the standard axles or with the optional 2-speed axles. These conversions replace the original brake rigging, and are designed especially for easy field installation.

Distortion and undue wrap-up action are eliminated and heavier and more rugged friction material may be used, without excessive drum wear, Eaton engineers claim, thereby insuring maximum brake lining mileage.

The slack-adjusters employed in conjunction with the constant-rise cam, permit easy external adjustment, inasmuch as these brakes become automatically adjusted as the cam advances.

When Eaton brake conversions are applied to 1937 Ford trucks, the use of 1938 Ford rear drums and emergency brakes is advised. No change in drums is needed on the 1938 Ford trucks. The same conditions as above also apply to the Ford transit buses.

On 1937 and 1938 Chevrolet trucks, new brake drums, front and rear, are required, Eaton engineers point out, when their heavy-duty brake is used.

When Eaton brake conversions are applied to 1937 and 1938 GMC Models 733 and T-16, no change in brake drum equipment is necessary.

Fleet operators and dealers may now obtain this new special heavy-duty brake equipment through Bendix-Westinghouse distributors, located in principal cities of the United States. For interesting literature, prices, discounts and other data, address Eaton Products, Inc., attention of Mr. Morgan Fenley, Cleveland, Ohio. . . .

●

1939 Federal Trucks

(*Continued from page* 44)

Lockheed 4-wheel hydraulic brakes are employed throughout, with vacuum boosters standard on all models except those rated 1½-ton and under. Other important features on this group of models include roller-bearing universal joints, fore-shackled front springs, rubber-bushed shackles and cast steel wheels. Two-speed rear axles are optional equipment. Timken rear-end units are used on all Federal 6-wheelers, both single and dual drive.

Federal-built cabs in standard type with one-piece windshield, and in the deluxe type with V-windshield, are especially designed to harmonize with the chassis lines. Improved comfort and safety factors have been incorporated for 1939. Two-tone color combinations carried out in the cabs and instrument panels give the interiors an attractive appearance.

All cabs have been thoroughly insulated and sealed against outside temperature, gas fumes and dust. Controls and instruments are grouped for easy reading and accessibility on the chrome-trimmed instrument panel. On the right side of the panel is a large dash compartment, as shown in the lower illustration. With its complete and comprehensive line of conventional and cab-over-engine chassis in a wide range of four and six-wheel types, and with complete building facilities within its plant, Federal will offer trucks to meet every possible hauling requirement in 1939.

New literature is now ready that completely illustrates, describes and prices all of the various models in Federal's new truck line for 1939. For your free copy of this literature, address S. G. Mitchell, c/o Federal Motor Truck Company, 5780 Federal Ave., Detroit, Mich. . . . We always appreciate it when you mention FLEET OWNER. Often it speeds up the service.

●

Two Cummins Diesels

(*Continued from page* 38)

Cummins fuel injector, the fuel-oil is first gasified, and then, by means of an overhead rocker-arm-operated plunger, it is forced into the heated air in the cylinder at the beginning of the power stroke. A fuel distributor and the injectors take the place of the carburetor and ignition system in the conventional gasoline engine.

"The functioning of the various parts are as follows: The fuel-oil is first taken from the fuel tank and delivered by means of a pump, at low pressure, to a metering plunger, located in the unit which forms the primary injection system.

"From there, the fuel-oil goes through a distributor disc, located in the same unit, which may be likened to the distributor of an electrical system, except that the oil flows through openings, while the spark passes through wires. From this distributor, the oil is delivered through fuel lines to the proper injectors, one of which is incorporated into each cylinder head.

"The fuel-oil is pre-heated and gasified in each injector body, and the action of the rocker-arm-operated injection plunger causes it to enter the cylinder, where ignition takes place. There are no high-pressure fuel lines on the outside of the engine, since all of the 'forcing' is done inside of the injector body, by mechanical means.

"The distributor unit and metering plunger are all mounted in one unit, together with a governor, on the left-hand side of the engine. There is but one metering plunger, which serves as a 'master' plunger, the distributor, by means of indexed discs, taking care of the distribution of fuel-oil to each injector body, as before mentioned. The metering plunger is so arranged that its stroke can be varied in accordance with the load or engine speed, and it can be operated by linkage connected to accelerator or hand throttle.

"The injectors, one of which is located in each cylinder head, consist of a forged steel body, held in place by two bolts. The injector plunger is closely fitted and is operated not unlike an overhead valve, by means of cam shaft and rocker-arms.

"On the intake stroke, fuel-oil is admitted into a small space under this plunger. As the piston goes up on the compression stroke, the oil is gasified. Slightly ahead of top center, the cam operating the push rod and rocker-arm, causes the plunger to push the gas charge into the cylinder through a series of small holes located in the bottom of the injector body. The plunger remains seated through the compression and exhaust stroke, after which the aforesaid cycle is repeated.

"To facilitate high turbulence during the combustion stroke, there is a small bottle or cavity in the top of each piston. On the upstroke this fills with air, which is blown out against the injector tip and throughout the cylinder cavity on the down stroke.

"No combustion takes place on the inside of this bottle due to the small diameter of the hole in the top.

"There are no adjustments to be made by the operator. The pumps are tested at the factory and remain in adjustment for an indefinite period."

It will be observed from the illustration that the general appearance of these engines is not greatly different from that of a gasoline engine. In fact, they have been so designed that they can readily be used as replacements for gasoline units.

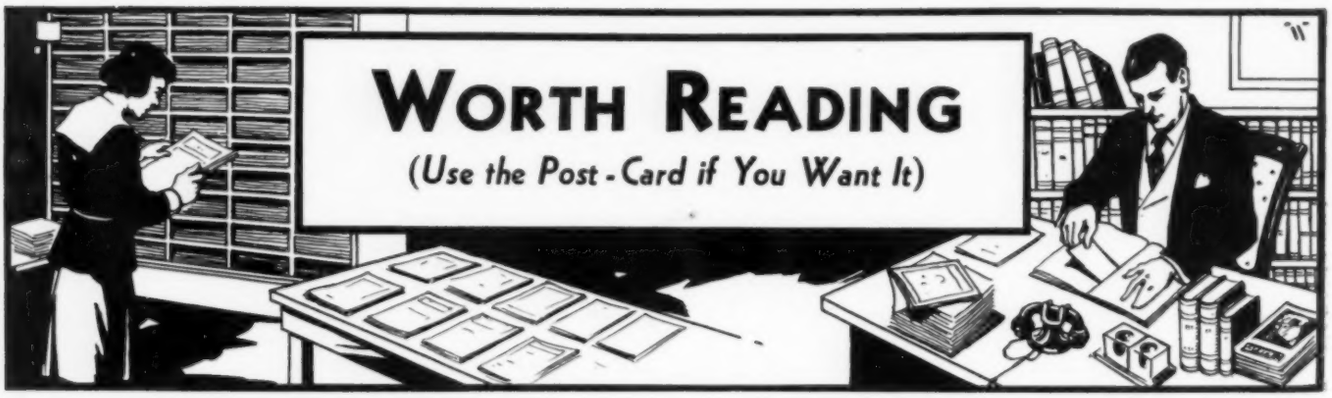
Crankshafts are steel forgings, having main bearings between all cylinders. Crankcases are of alloy iron, cast integral with cylinder block; the latter has removable liners. Camshaft is located on the fuel-pump side of each engine and is driven by helical gears. Main bearings are 3⅞" in diameter. The flywheel is machined for a standard automotive clutch, with S.A.E. housings available in various combinations.

Lubrication is by full pressure to all bearings, through a gear pump. A built-in governor is supplied in the Cummins patented fuel-pump assembly. Intake and exhaust valves are of special, heat-resisting alloy steel; head diameter is 1⅜" in clear. Pistons are of chrome-nickel-iron, cam-ground, with three compression rings and one oil ring. Connecting rods have 2⅝-inch bearing diameters, with 1½-inch diameter piston-pins. Length of rods is 9½", center to center. Engine suspension is of the three-point type.

For further literature, details and prices of these two new, smaller Cummins engines, write directly to Cummins Engine Company, attention of P. E. Letsinger, Columbus, Indiana. . . . You'll mention FLEET OWNER when writing, won't you?

WEED American
BAR-REINFORCEMENTS
. . . more than
DOUBLE
your
Chain Mileage
● Yes, those double-welded Bar-Reinforcements not only prevent forward, back and side skids but they also provide twice the metal to wear through. Moreover, that metal is tough, wear-resisting "Weedalloy," especially developed for WEED Tire Chains. That means still *more* mileage.
Thus WEED American Bar-Reinforced Tire Chains give you greater safety—*more* than *double* mileage. That's why they are known as "The Best Buy in Tire Chains."
Standardize on WEED Americans and cut your chain costs.
AMERICAN CHAIN & CABLE COMPANY, Inc.
BRIDGEPORT, CONNECTICUT
ACCO
In Business for Your Safety
WEED
SEND FOR FREE CHART
25% to 50% can be added to chain mileage by proper installation. Send for free chart that shows how to apply chains so that all cross chains get equal wear.
WEED American
Bar-Reinforced
TIRE CHAINS

Licensed to manufacture and sell Bar-Reinforced Tire Chains under United States and Canadian Letters Patent: American Chain & Cable Company, Inc.; The McKay Company; The Hodell Chain Company; Pyrene Manufacturing Company; Dominion Chain Company, Limited; and Pyrene Manufacturing Company of Canada, Limited.



WORTH READING

(Use the Post-Card if You Want It)

455. OIL-FILTER MANUAL. . . . A 100-page Service Manual is offered free, through this department, showing (with diagrams) how to install modern type oil-filters on practically every make of car, truck or bus engine. . . . Included is another 32-page book, giving valuable data telling how to keep engines clean *internally* through the use of oil-filters. . . . The Manual itself should be extremely valuable to you, regardless of the make or type of oil-filters you are at present using. . . . Number 455 on the post-card brings this set of literature; the mail-man will deliver it.

•

456. STATE REGULATION BOOK. . . . When you wish to run your vehicles into other states, you don't have to consult a lawyer or a transportation expert—not if you have a copy of this brand-new and up-to-date booklet entitled *"Truck and Trailer Size and Weight Restrictions."* . . . This is a *real* Handbook that covers *every* state in the Union. . . . To make it "official," each set of state laws is printed on a separate page, and is countersigned by the state motor-vehicle official of each state. . . . The book is pocket-size, and without advertising. . . . Number 456 on our post-card brings a *free* copy promptly. No postage is required. . . . Everything on this page is sent *by mail.*

•

457. SPARK PLUG DATA BOOK. . . . Everyone who uses spark plugs (and all of us do) will be interested in this new *Spark Plug Data Book,* offered free. . . . It contains actual photographs of many service cases; it gives timely tips on installation; what to look for in tuning-up a motor; the reason for "hot and cold" plugs and how to tell which type to use; a table of recommended gap settings; and many reasons for spark plug failures. . . . For your free copy of this new *tune-up* manual, just indicate Number 457 on our post-card, and the mail-man will bring it to you promptly.

•

458. HOW TO REMOVE SPOTS. . . . Here is an interesting little book entitled *"On the Spot"*. . . . It gives a fine assortment of hints on how to clean upholstery in your automobile and at home. . . . Prepared by experts, this book does *not* attempt to boost any special cleaning products; on the contrary, it gives you many handy upholstery cleaning hints, making use of such solvents as are on hand in every home and garage. . . . Some of the stains it tells how to remove are: Grease, Oil, Blood, Candy, Fruit, Liquor, Wine, Tar, Chewing Gum, Ink, Lipstick, Rust, etc. etc. . . . For a free copy of this really helpful little booklet, just place Number 458 on our post-card and the mail-man will bring it promptly.

•

459. DOUBLE YOUR LOAD-SPACE. . . . That is the title of a new folder of interest to fleet operators making house-to-house delivery of light, bulky products, such as bakeries, laundries, dry cleaners, florists, department stores, dairies, food dealers, etc. . . . The literature shows how modern "conversion bodies", available for *all* makes of ½ to 1½-ton chasses, enable fleet operators to *double* their load-space without going into more expensive truck chasses. . . . Savings on license-costs, garage space, over-all length, gasoline, oil and insurance, etc. are promised. From the many bodies of this type in use, we think they're worth investigating. . . . Number 459 on our post-card brings you this new booklet, without obligation of any kind.

•

460. WHAT IS A HESSELMAN? . . . It's an engine that burns fuel-oil. Some people call it, *"A Diesel with a Spark Plug"*. . . . A handy little pocket-sized booklet tells all about this new type of oil engine, which operates very much like a Diesel and very much like a regular gasoline engine. . . . The saving, of course, is in the fuel which it uses. . . . The engine is very interestingly described in this booklet, and it soon will be available in practically every popular truck size. . . . If you send for this little booklet, you'll know all about it, *in advance* of the new announcement. . . . Number 460 brings a free copy; just use the attached post-card; no obligation, now or at any time.

•

461. STOPPING-DISTANCE CHART. . . . Here is a colorful stopping distance chart that also makes a very effective safety poster for your garage. . . . It is made up to show the distance a vehicle is required to travel before it can be stopped, at various speeds. . . . The stopping distance is given in "car lengths" rather than in feet, the idea being that your drivers will be better impressed when they are given the dope in car lengths, and that it will produce better, safer driving among your fleet. . . Number 461 brings a free copy, ready to hang up on the wall.

•

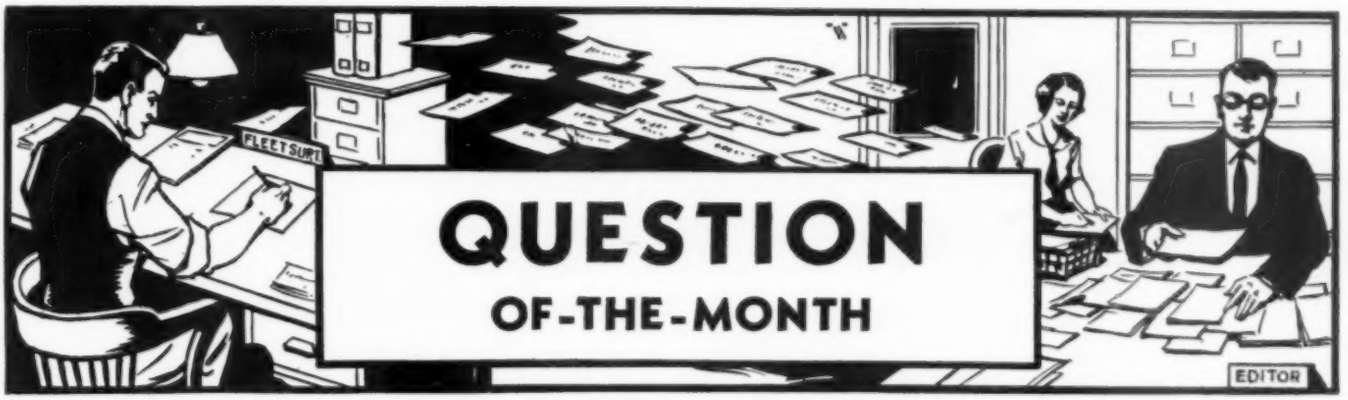
462. "I MAINTAIN MY SCHEDULES". . . . That is the title of a new booklet, which tells how one fleet operator maintains his winter schedules and doubles his tire-chain mileage. . . . This fleet man tells how he found a way to do this, and to cut down his tire-chain costs, too! . . . If you're the type of person who is open to good suggestions, you'll want to read over this new folder, as it gives *one* man's solution to the same winter problems now confronting you. . . . Number 462 brings a free copy, if you want it; use the post-card, please.

•

463. "MACK NEWS". . . . If you would like to be placed on the mailing-list to receive Mack's monthly newspaper, called *"The Mack Bulldog"*, we'll be glad to pass your name along. . . . The *"Bulldog"* is really a little magazine, chock full of pictures of truck jobs placed into service by other fleet operators, showing new types of bodies, tractor-trailer combinations, special trucks for various vocations, etc. . . . In other words the pictures show many Macks at work—here and there. . . . The publication is written in a "newsy" style, and Mack will be pleased to put your name on the list to get it regularly, without cost or obligation—just like you get FLEET OWNER. . . . Number 463 on our post-card does the trick.

•

464. MAKE MANY STOPS? . . . If you do, and if you are in the dairy, laundry, bakery, butcher, meat-packing, department store, or other house-to-house industry, you'll undoubtedly find this new folder interesting. . . . Its title is *"How to Save Time and Increase Profits on Frequent-Stop Delivery Routes"*. . . . Briefly, it illustrates and describes the new type of Pak-Age-Car, in which the power-unit and rear axle are all in one piece, so that you can pull one out and put in another—just like that—in case of service needs. . . . Thus no time is lost, and the vehicle is out of service for a mere matter of minutes only. . . . Number 464 brings a copy of the new folder, so that you can look, investigate and criticize it.



QUESTION
OF-THE-MONTH

Timing Gear *and* Chain Fleet Experience:

(Here's How You Can Get the Complete Picture on this Controversial Subject:)

ENGINE TIMING is important; strange that we have not had a survey on this subject before. Here it is. . . . Since *all* of us operate engines, this questionnaire should prove quite timely. . . . It's a controversial subject at present, anyway.

The questionnaire is the *first* step. In return for a few minutes of your time in filling it out and sending it back to us, you will receive *your own* private, personal copy of the complete picture. We do all of the *hard work*, digesting and totaling the replies—and *you* get the *benefit!*

Names of fleets or executives are *never* mentioned or disclosed in any way. So don't hesitate to participate. You can *trust* us! The only thing we give out is the total, the trend, the popularity of relative makes, etc.

Once you participate, we feel sure that you will do it regularly. Your cooperation is appreciated.—H.C.F.

(Please tear out and mail to The Editor, Fleet Owner, 90 West St., New York, N. Y.)

Question No. 94—Timing-Gears and Timing-Chains

Timing-Gears—

How are MOST of your engines timed? (Please check *one*) ☐ Timing-Gears; ☐ Timing-Chains; ☐ Evenly Divided
Of those that are gear-timed, about how many are equipped with *silent* (non-metallic) gears? ..... Vehicles
What is the average life of *silent* (non-metallic) timing-gears in your service? ..... Years.
When replacement is necessary, what do you order? ☐ Original Equipment Gear; ☐ "Replacement" Gear.
If *other* than original equipment is used, what make *silent* gear do you prefer? .....*Confidential*
Of gear-timed drives, which do you prefer? ☐ All Metal Gears; ☐ Metal *and* Non-Metallic Gears
When all-metal timing gears are used, what is their *average* life in your service? .....Years.
When metal-gear replacement is necessary, what do you order? ☐ Original Equipment Gears; ☐ "Replacement" Gear
If *other* than original equipment metal gears are used, what make do you prefer? .....*Confidential*

Timing-Chains—

What is the average life of timing-chains in your service?.....Years. Life of Sprockets? ..... Years
When replacement chains are necessary, what do you order? ☐ Original Equipment Chains; ☐ "Replacement" Chain
If other than original equipment chains are used, what make do you prefer? .....*Confidential*
Which type of chain-adjustment do you prefer? ☐ Automatic adjustment; ☐ Manual adjustment.

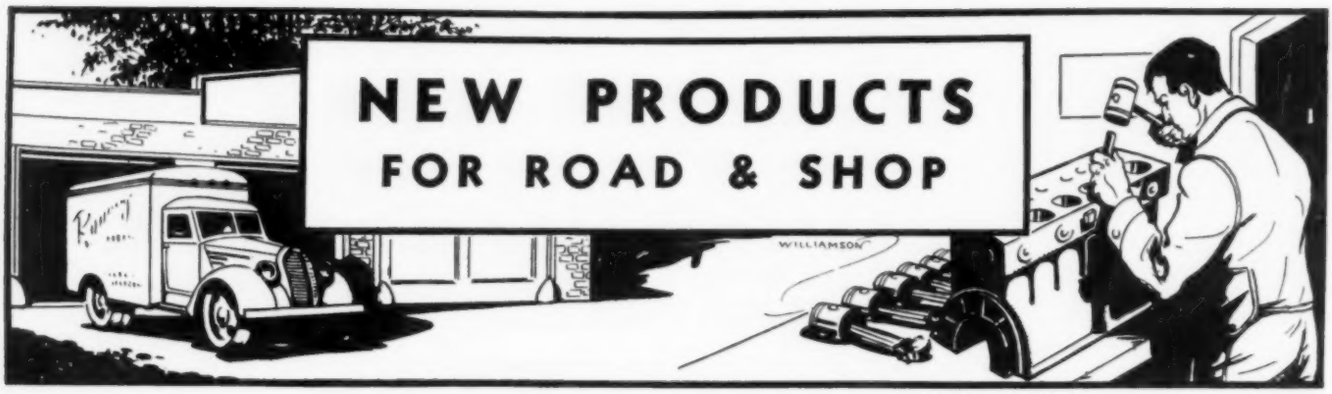
General—

If you had your choice, which type of front-end drive would you prefer? ☐ Timing-Gears; ☐ Timing-Chains
Please give some reasons for your choice as to the above.....
.....
What is your source of supply on timing-gears, timing-chains, sprockets, etc., for replacement?
☐ Vehicle Dealer or Factory; ☐ Automotive Jobber; ☐ Other source of supply?.....
Do you carry any stock of timing-gears or chains for replacement purposes? ☐ Little; ☐ Much ; ☐ None.
What are the usual symptoms calling for timing-gear replacement? .....
What are the usual symptoms calling for timing-chain replacement? .....
How much trouble do timing-drives give you? ☐ Little; ☐ Much; ☐ None
How many vehicles in your fleet? (Please indicate below)
Trucks..... Tractors..... Trailers..... Pass. Cars..... Buses..... Miscellaneous.....

Note: If you cooperate with us and fill out this questionnaire, you will be entitled to a tabulated report covering all of the answers.

Swap your transportation experience with other fleet operators in this easy, convenient way. We do the work. You get the benefit.

Name of Firm .....
Address .....
City and State .....
Your Name ..... *Position*.....



Magnus Vapor Cleaner

A NEW descriptive folder has recently been issued, covering Magnus' new product—Magnus Vapor Cleaner. This product is offered in two grades, both of which are light

brown pastes, said to be quickly and readily soluble in water.

They are said to impart to the water a wetting, penetrative and solvent effect and are recommended by the maker to be used in any make of steam or vapor cleaning machine, such as the Hy-Pressure Jenny, the Kerrick Kleaner, the Circo Cyclone Cleaner, the Ofelt, the Eclipse and the Star.

Magnus' new cleaner is a product which combines the principles of soap washing with solvent cleaning, according to the makers. This combination of the two results in a thorough cutting action, it is claimed. . . . For your free copy of the new descriptive folder, address Magnus Chemical Company, 36 South Ave., Garwood, N. J. . . . You'll mention FLEET OWNER, won't you?

•

New Truck-Tire Handbook

INCLUDING for the first time a table on the effect of load and speed on tire service, with percentages of recommended maximum loads at maximum sustained speeds to obtain normal tire service, The B. F. Goodrich Company, Akron, Ohio, has recently published an Operators Handbook on truck, bus and farm and industrial tractor tires.

Containing 66 pages, the volume is crammed with statistical material of interest to every operator of commercial vehicles, on highways, farm and factory. Description and specifications of the company's products for these varied services are included.

Four pages are given to a discussion of how to prevent truck tire failures, including the heat-speed problem. Development of the new Goodrich Hi-Flex tire cord, in which the cotton is processed so the cord is smaller in diameter, and its relation to the heat-speed problem is related. Two pages are devoted to methods of correctly calculating truck tire costs, with a description of the company's new and improved truck tire calculator.

Truck and bus tire descriptions and specification data fill 20 pages. Eight pages are devoted to data and descriptions of farm tractor and implement tires. Twelve pages on data of tires for industrial uses are included.

Load analysis, load and service diagrams, load ratios and inflation pressures, and specifications for truck and bus tires, rims and dual spacings comprise six more pages. . . . For your free copy of the Handbook and also one of the free Tire Calculators, address W. C. Bray, c/o B. F. Goodrich Co., Akron, Ohio. . . . You'll tell him you saw this in FLEET OWNER, won't you?

•

Bearing Leak-Detector

HERE is the bearing leak-detector which was illustrated on page 32 of our October issue, in connection with our survey article on engine bearings. It consists of an air-tight tank, inflation-valve, regulating valve, hose and fittings, all of substantial construction. It is a Sealed Power product.

In use, the tank is partially filled with oil and then the remaining air is compressed. The end of the hose is attached to the main oil-line of the engine to be tested (as shown on page 32 of our October issue) with the oil-pan down, of course.

The pressure of the air in the tank forces the oil through the oil-passages of the engine, so that the drip off the bearings can be observed. Oil dropping out of a bearing at the rate of 25 drops per minute is about correct. . . . Fifty drops per minute is "passable," but any more than that, or any tendency of the oil to come out in a solid stream, means that the bearing is worn badly and should be replaced. The tester can also be used to show up those bearings that are not getting any oil, due to clogged passages.

For complete details, address J. E. Norwood, c/o Sealed Power Corporation, Muskegon, Mich. . . . Mention of FLEET OWNER is always appreciated.

•

Improved Rotawasher

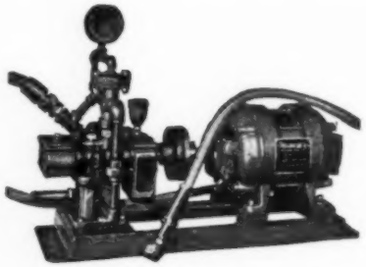
THE makers of the Rotawasher, illustrated here, have kept it up-to-date since its introduction several years ago.

The jet-mixer, for instance, is supplied as standard equipment. This introduces a small amount of kerosene into the water passing through the pump, resulting in a thorough emulsification and doing away with the need for hot water.

Automatic control starts the motor when the valve is turned on. As long as one outlet is open, the motor runs; it stops when the last outlet is shut off.

The Rotawasher nozzle delivers a steel-like bar of water, or a velvety spray, without change of capacity or pressure. A twist of the wrist instantly adjusts the jet-spray nozzle.

A vacuum attachment is provided, which operates on water and has no moving parts. Rush of water and high pressure creates the vacuum,



which can be used for cleaning car, truck and bus interiors.

For interesting literature describing and illustrating this handy washer, address The Rotawasher Corporation, 118 E. St. Clair Ave., Cleveland, Ohio. . . . You'll mention FLEET OWNER, won't you?

EXECUTIVES today are free from prejudice and preconceived ideas. They're "Trailer-minded" because they are "cost-minded." Struggling with all kinds of unusual expenses, they're turning to Fruehauf Trailers—and these useful business tools are trimming costs so that earnings can come back and UP.

EXCLUSIVE FEATURES

These Fruehauf cost-cutting advantages include the new "F" body, permitting bigger payload with no increase in gross weight, and designed so that it is easy to service. New heavy-duty, mountain-type brakes with quick-action application, designed especially for super-safe operation. Improved main and auxiliary springs for greater safety.

Remember, too, that Fruehaufs are easy to service. First, because they're designed right, and, second, because Fruehauf has the largest branch and distributor organization in the Trailer industry. Quick, efficient service is assured!

If you're looking for bigger profits through bigger payloads, look into Fruehauf Trailers. Complete details, including price and specifications, available without obligation.

World's Oldest and Largest Manufacturers of Truck-Trailers

FRUEHAUF TRAILER CO.

10913 Harper Ave. - Detroit, Mich.

Sales and Service In Principal Cities

FRUEHAUF TRAILERS

HERE ARE THE ADVANTAGES OF THE FRUEHAUF DUMP TRAILER

POWER FIFTH WHEEL—a patented mechanism which transmits power from the tractor to the hoist mechanism, permitting complete interchangeability of units.

HIGH TENSILE STEEL FRAME—providing more strength with less weight, thereby increasing the payload without increasing the gross weight.

DUMP TRAILER STABILIZER—another patented Fruehauf feature designed to make dumping safe by distributing the load.

FRUEHAUF TRAILERS "Engineered Transportation"

REG. U.S. PAT. OFF.

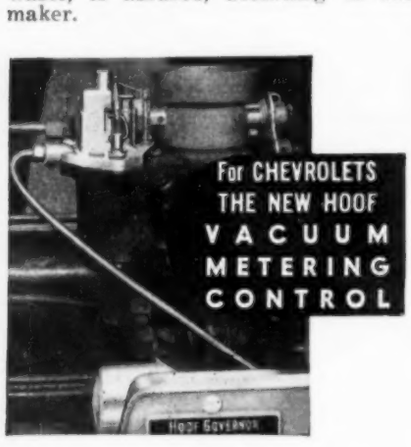
MORE FRUEHAUF TRAILERS ON THE ROAD THAN ANY OTHER MAKE

New Hoof "Economizers"

TWO NEW devices said to provide more economical operation on Ford and Chevrolet cars or trucks that are equipped with governors of *any* make, are announced by Hoof Products Company, 162 N. Franklin St., Chicago, Ill.

For Ford V-8 cars and trucks a vacuum-operated control is provided, as shown in the upper illustration, which keeps the power-jet of the carburetor closed, except when the load on the engine warrants it. It works in the following manner: As long as the vacuum is high, with a small load on the engine, the piston is kept closed by vacuum, to its shortest length so that the manipulation of the throttle cannot open the power jet. When the vacuum drops, and a heavier load is placed on the engine, an opposing calibrated spring moves the piston and cylinder (of the device) apart, allowing the pump to open the power mixture jet, as the throttle approaches a wide open position.

This device (for Ford) replaces the pump rod, connecting the carburetor throttle to the pump arm, which in turn controls the power mixture of the carburetor. Thus, correct feeding of the fuel, as required, and without waste, is assured, according to the maker.



For Chevrolet cars and trucks that are governor-equipped (any make) Hoof offers a vacuum-operated metering control, which controls, by engine vacuum, the movement of the metering-pin, thus assuring correct fuel feeding and providing better fuel economy when governors are used. This device is shown in the lower picture.

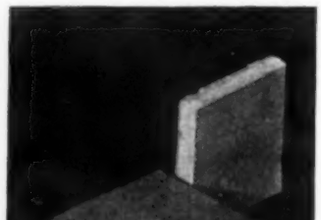
Hoof engineers point out that many drivers keep their feet on the throttle, down to the floor board, and beyond the throttle-opening which the governed speed requires, and that these two new devices take the "human element" out of driving by providing the proper mixture for all governed speeds.

For illustrated literature address H. C. Kepner, c/o Hoof Products Co., 162 N. Franklin St., Dept. BEF, Chicago, Ill. . . . You'll mention FLEET OWNER, won't you?

•

New Low-Priced "Dry-Zero"

A NEW, low-cost Dry-Zero insulation for insulated or refrigerated truck and trailer bodies has been put on the market by the Dry-Zero Corporation, Chicago, Ill. It makes Dry-Zero available for the first time in rolls, so that pieces can be cut to size on the job. The company will also supply it ready-cut to specified sizes and shapes. Although its price is considerably lower, it has the same insulating effectiveness as other Dry-Zero products, it is claimed.



The new product, called "Dry-Zero Bound-Batt," has been in process of development for two years. Originally designed for use in such products as household refrigerators, ice cream cabinets and commercial coolers, its extreme light weight—8/10ths of a pound per cubic foot—and its resistance to settling, make it particularly suitable for refrigerated transport equipment. Its lower cost is due to improved product design and manufacturing technique, according to Harvey Lindsay, president of the company. It is already being used in large quantities to insulate the 1939 cabinets of two leading household refrigerator manufacturers.

The chief advantage of the new product, according to Mr. Lindsay, is the ease with which it can be cut to the specified sizes and shapes, including triangular or other irregular forms required for insulating refrigerated equipment of various kinds.

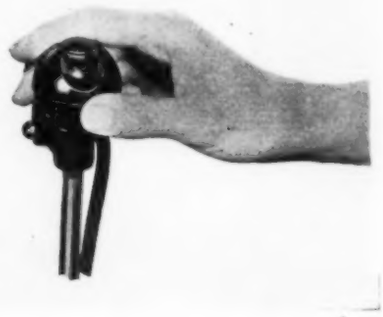
The low cost of fabricating Dry-Zero Bound-Batt makes it particularly suitable for limited production products, such as refrigerated truck bodies, ice cream cabinets, refrigerated showcases, walk-in coolers, quick-frozen food cases and milk cooling tanks.

Dry-Zero Bound-Batt is being manufactured in thicknesses of 1, 1½, 2, 2½, 3, 3½ and 4 inches and in widths up to 36 inches. . . . For further information address Harvey Lindsay, President, Dry-Zero Corporation, Merchandise Mart, Chicago, Ill. . . . Mention of FLEET OWNER always helps.

•

New Signal Switches

TWO NEW series of directional-signal switches have been announced by The Teleoptic Company, Racine, Wis. They are for 1939 cars and trucks and are called "Handi-Turn" and "Finger-Flip."



The Handi-Turn switches are for mounting on the new-type gear-shift lever on the steering column. Almost the same size as the knobs used by the car manufacturers, the switch is mounted at the end of the lever. These switches will be molded in various colors to conform with the interior appointments of the car.

The "Finger-Flip" switches (illustrated) are for trucks and cars using the "wobble-stick" type of gear-shift lever. These switches are a refinement of the model which the company has been supplying for the past several years. Improvement in the mechanical structure, decrease in the size of the ball, and (in one model) the depressing of the knob make this switch a very neat job.

Another model uses a peg-like lever instead of the knob for operation. Some operators may find that the Handi-Turn switch can be mounted on the air, vacuum or electric-brake handle.

For complete details, literature and prices covering the complete line of Teleoptic direction-signals and switches, address The Teleoptic Company, attention of B. L. Bobroff, Racine, Wis. . . . They'll be glad to hear that you read this announcement in FLEET OWNER. You'll mention it, won't you?

•

Ohio State Offers New Welding Course

A NEW curriculum in Ohio State University's college of engineering, leading to a degree in welding engineering, is announced, starting this Fall. . . . It will include all branches of modern welding, such as electric, gas, resistance, etc., in an attempt to meet the need for a training for men desiring to specialize in this comparatively new technology. . . . It will seek to supplement the training of civil, metallurgical, industrial and mechanical engineers.

New Mud-Snow Tire

THE Goodyear Tire & Rubber Company's new "Studded Sure-Grip" tire, is equipped with a different type tread, providing rugged studs set in angular bar arrangement, to insure forward or backward traction when the going is difficult.

Designed for use by cars and trucks in off-the-road service, the new tire's wider tread channels between the studs prevent packing and spinning when the car or truck is traveling in mud or snow. Responsible for the tire's greater tractive ability under adverse winter highway conditions is the improved angling or spacing of the studs, according to Goodyear engineers.

Tread of the Studded Sure-Grip is wider, giving increased road surface contact and, as a result, improved gripping action. To furnish extra protection against bruising often encountered in off-the-highway travel there are double cord breakers built into the tire, supplying extra strength.

Supertwist compression-proof cord in each ply provides a new, extra strong body upon which to carry the thicker tread, another improved factor in the tire pointed out by the makers. . . . For complete information address Goodyear Tire & Rubber Co., attention Mr. L. J. Bornhofen, Akron, Ohio. . . . Mention of FLEET OWNER always helps.

•

U. S. Elec. Tool Catalog

THE United States Electrical Tool Co., Cincinnati, Ohio, is now releasing its latest catalog recently completed. This is a comprehensive catalog which illustrates, by means of actual photographs, the full line of electrical tools for the industrial and automotive trades which has been built up over a long period of years.

The U. S. Catalog gives precise and exhaustive information on each tool, together with technical descriptions, so that the buyer can get a full idea of what the various machines will do and the purposes for which they are constructed. It is really a manual of electrical tools which is not like the average catalog. An index enables one to find just what he wants without being compelled to thumb through the entire catalog.

Included are a large number of new electrical tools which will be of great interest to users of electrical tool equipment. Copies of the new U. S. Electrical Tool Co. catalog will be sent free upon request to The United States Electrical Tool Co., Cincinnati, Ohio. . . . You'll mention FLEET OWNER, won't you?

•

Bosch Fuel-Oil Filter

THE AMERICAN Bosch Corporation, Springfield, Mass., announces that it is now in production on a new fuel-oil filter, illustrated here.

This new product, known as the American Bosch Sealed Fuel-Oil Filter, is intended for use as the final filtering unit in the fuel-oil filter system on Diesel engines, to remove foreign matter, which inevitably seems to find its way into fuel-oil, either from storage or from handling operations.

It is claimed that this new unit insures the removal of the finest dirt particles that are harmful to the fuel-injection system and which frequently remain in the fuel-oil after it has passed through the regular filters.

It is pointed out that the clean fuel-oil from this new filter assures maximum life for the fuel-injection equipment. By its use the finely-lapped parts such as injection pump plungers with barrels, discharge valves and the spray nozzles are protected from the destructive abrasive effects of the fine dirt particles which have been removed, it is claimed.

According to the manufacturer, extensive field tests were conducted prior to a public announcement of this new filter. Since it features sealed construction, the entire unit must be replaced at intervals, which depend largely on the size of the engine, the

efficiency of the primary filters, and the fuel-oil used. The maker states that some reports have been received of over 5,000 hours of operation without replacement.

The new filter is an inexpensive unit designed for application on all types of automotive, industrial and marine Diesel engines. . . . For further details address C. L. Shedd, c/o American Bosch Corporation, Springfield, Mass. . . . We always appreciate it when you mention FLEET OWNER.

•

Prevents Over-Filling Tanks

VENTALARM is a fool-proof signaling device installed on the top of the gasoline tank in series with a

separate vent pipe. The gasoline entering the tank displaces vapors which are expelled from the tank through the Ventalarm, creating an audible whistle which is transmitted out the vent. The whistle stops when the bottom of the whistle stem is sealed, thus providing adequate space for expansion of the gasoline and completion of a full gallon from the pump. Relief means incorporated in the Ventalarm provide that the pressure in the tank does not slow up filling.

Ventalarm has already received national recognition in the delivery of household fuel oil—the driver never enters the home to fill an inside tank. Though only recently made available in the automotive field, it is now being specified as standard equipment by many of the most prominent operators of automotive equipment in the United States, according to the makers.

The illustration shows a cut-away section of a truck gasoline tank with the Ventalarm installed. For interesting literature and complete data, address Scully Signal Company, 88 First St., Cambridge, Mass. . . . Mention of FLEET OWNER is always appreciated by us.

•

Cleans Aluminum Castings

THE self-emulsifying solvent called "Gunk" is now said to possess valuable degreasing properties on aluminum castings, and to leave such castings with a new silver-white appearance, according to the makers.

They also state that this cleaner has no chemical effect on the aluminum itself; there is no etching and no loss of weight of the metal. Pistons, cylinder-heads and aluminum crankcases are especially pointed out by the maker, as products for which this cleaner will be found ideal. Carburetors, fuel-pumps and Diesel equipment are also mentioned.

For complete information, prices, discounts, etc., address The Curran Corporation, Malden, Mass. . . . Whenever you mention FLEET OWNER it speeds up the service, and pleases us, too.

HOW TO MANAGE TRUCKS

OVERTIME
TIME OUT FOR REPAIRS
TRAFFIC JAMS
WAITING FOR LOAD
BAD ROUTING
STANDING TIME
IDLE TIME
WASTE
QUITTING EARLY
LOST TIME
DELAYS
IDLE

It's all a matter of **TIME**

★ *When* did the truck leave—*when* did it arrive—*how long* did it stop—*just when* did it finish the first route—how much idle time—overtime—etc.

These are master questions, and when you get the answers "written" on a paper chart (see below) then it's easy to do a grand job of truck management.

It's really fun, and it happens to save a lot of money also—maybe $500 per year *per truck!* Find out about it. Write for booklet: *Ten Ways of Getting More Work Out of Motor Trucks.* It's Free.

THE SERVICE RECORDER CO.
1422 Euclid Ave. • Cleveland, O.

The Servis Recorder
Tells Every Move Your Truck Makes

"100,000-Mile Club"

(*Continued from page* 16)

The circular insignia which also appears at the top of the first page of this article is of novel design, incorporating the familiar "bell" trademark, and the wording *"100,000-Mile Club."* . . . *"No Accidents."* . . . *"Safety First."* . . .

We feel certain that other fleet operators, in *any* line of business, would do well to follow the splendid example set by Bell Telephone Company of Pennsylvania. It is a genuine pleasure to pass this good word along.—*Editor.*

Diesel Change-Over

(*Continued from page* 22)

mostly by fuel-soot; and therefore, no fuel-soot, no smoke. We are *not* having any smoking troubles; definitely not.

Many people ask us if we reclaim crankcase drainings. The answer is "No". We feel that we are getting very good use out of our oil, in conjunction with the filters, especially. Crankcase drainings are used in continuous-drip oilers for our chain drives—a practice that has increased drive-chain life as much as 7,000 hours per chain. In fact, we find that we do not have sufficient crankcase drainings to fill our demand for "chain oil", and we even have to go out and purchase such lubricant, from time to time. So we consider our used crankcase oil a good investment.

We have developed, at Colonial, a rather unique system of truck lubrication—including chassis, springs, universals, engines, etc. All of this work is done by our *drivers*—each driver being responsible for the proper lubrication of his truck. Space will not permit a detailed description of our system in this article, and we hope to be able to offer it to you in a future story. We are always pleased to interchange our maintenance experiences in this manner, for the general benefit of the entire "school" of fleet operation.

●

C.O.E. Tractors

(*Continued from page* 24)

porting livestock had been in retirement for some time.

Recently, the fifth-wheel pin was moved back 8 inches and the semi-trailer was then attached to a Ford V-8, 101-inch wheelbase cab-over-engine tractor. The over-all length of the new combination is 2 feet 9 inches *less* than that of the old combination and conforms with the requirements of *all* states. (This particular unit is illustrated with this article).

While the figures given in this article refer to the Ford V-8, 101-inch cab-over-engine tractor chassis, it goes without saying that a similar table can be worked out for other makes of short-wheelbase, cab-over-engine tractors, as well. This information is published here, *only* because the Ford engineering department was kind enough to work it out for us.

No doubt the manufacturers of other short-wheelbase, cab-over-engine tractors, already have similar tables in their files, which you can secure on application. We'll be glad to help you, if you let us know the make of chassis which you have in mind.

We do not anticipate that a great many old, used semi-trailers will be pulled out of retirement as a result of the appearance of this article. However, if you *can* do this, you will be just so much ahead. On the other hand, this is the fleet operator's opportunity to buy new, *modern* trailers, taking advantage of the size restrictions which have thus been pointed out. Perhaps also, it is the trailer manufacturers' opportunity to expand their markets and to advise the proper purchase of larger units that will still be within the law.

We must not overlook the great strides that have been made in trailer design and construction—the use of lighter and stronger materials—the development of better springing and axles—and the advent of better braking systems, all of which combine to make the old-type trailers somewhat

obsolete, and not exactly the best thing to drag out of the attic and hitch up, without giving careful consideration to all of the factors involved.

●

Tire Survey

(*Continued from page* 34)

"Every Day"—87; "Twice Weekly"—10; "3 Times a Week"—1; "Once a Week"—168; "Every 2 Weeks"—15; "Once a Month"—4. . . . We are highly pleased with the above figures, except, perhaps, those ranging around every two-weeks-to-one-month. We really think it would pay those people to go on a *weekly* basis, at least. And we are quite sincere about it. Perhaps there are *reasons* why this work is not done more often; however, we can't think of any good ones; maybe you'll tell us some time?

The next two questions simply show who does tire repair work (minor and major); they also give the manufacturer an idea of the potential market for tire shop equipment, patches, cement, etc., etc. . . . First we asked, "*Who does your minor tire repairs—fix flats, etc.?*" The answers were "Our own men"—163; "Tire Dealer or Supplier"—118; "Both"—4.

In answer to the question, "*Who does your major tire repairs—casing work, etc.?*", the answers were "Tire Dealer or Supplier"—274; "Our own men"—10; "Both"—1. These answers were somewhat what we expected; however we *do* believe that a lot more fleets might find it economical to do their own flat-fixing, especially if they have air-compressors and tire gauges. Small vulcanizers, tire-spreaders and the like, do not cost so much, you know.

The next question asked, "*What service now rendered by your tire dealer, do you consider the most important?*" The answers were: Inspection and Inflation—37; Claim Adjustments—23; Prompt Repair Service—19; Road Repair Service—18; Carry Sufficient Stock—17; Advisory Engineering Service—15; Quality Tire and Tube Repairs—14; Recapping and/or Retreading—11; Mounting and Changing Tires—11; Prompt Response and Delivery—8; Tire Regrooving Work—2; Night Service on Repairs—1.

The next question asked, "*What service, NOT now obtainable (or that you are not getting) do you think is desirable?*". . . . Here the answers were as follows:

"*Quicker, more liberal adjustments.*"—*Mentioned 4 times.*

"*Unconditional guarantee, on mileage, or time basis.*"—*4 times.*

"*More data on load-carrying capacity of tires.*"—*4 times.*

"*Would like more frequent inspections by dealers.*"—*4 times.*

"*Accurate check of tire mileage and tire records.*"—*3 times.*

"*Tire 'mileage contracts' for trucks.*"—*2 times.*

"*Quality repairing and retreading.*"—*2 times.*

"*Would like to get better road-call service.*"—*2 times.*

"*Would like to borrow 'loaners' when repairs are made.*"

"*Need a good nail-hole repair for casings.*"

"*We require a good truck-tire spreader.*"

"*Want tires and tire-valves that will not leak air.*"

"*Would like longer adjustment periods.*"

"*Should be more experienced contact men.*"

"*No local vulcanizers in our territory.*"

"*Seeking a better cut-filling compound.*"

"*Think tire dealers should render wheel alignment service.*"

"*Would like to get 24-hour service on repairs.*"

"*Desire a wheel-tire-tube-assembly exchange.*"

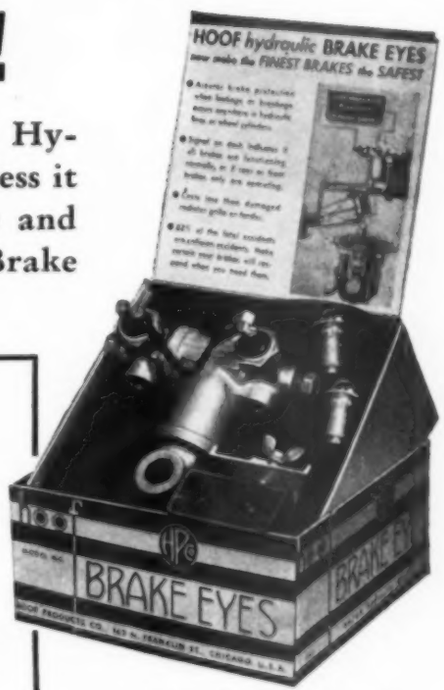
"*Dealers should carry larger stocks of tires.*"

"*We need night-service on tire repairs.*"

Next we asked, "*What is your most important problem in connection with tires?*" . . . The "problems" mentioned are listed here, the numbers after each designating the number of times each was mentioned: Inspection and

HOOF BRAKE EYES MAKE HYDRAULIC BRAKES SAFE!

No Motor Vehicle with Hydraulic Brakes is safe unless it is protected against line and cup failure with Hoof Brake Eyes!



Endorsed by leading Safety Authorities For Fleets!

Get the complete story on the importance of this development to you. Write!

REGARDLESS OF FAILURE

in either front or rear brake system—

Hoof BRAKE EYES ASSURE PROTECTION *with two Balanced Brakes!*

PRICED SO LOW that No Fleet Owner Can Afford to be Without This Extra Measure of Safety!

If your jobber cannot supply you, write direct to

HOOF PRODUCTS COMPANY, Makers of Famous Hoof Cantilever Governors
Dept. BEF, 6543 So. Laramie Ave., Chicago, Ill.

HOOF BRAKE EYES
For SAFER Hydraulic Brakes
Patent No. 2,105,748

GOOD Body Fittings INDICATE TRUCK VALUE

B. Heinig, builder, Chicago.

Investigate THESE NEW "LONG RUN" ITEMS

The real value of a modern truck can always be appraised from the quality of the body fittings provided by the builder. Cheap, skimpy door locks, hinges, etc., foretell almost continuous annoyance and cost from wear, misalignment and breakage.

But the incorporation of dependable Eberhard body hardware displays the builder's careful attention to every detail that makes for unhindered operation and low maintenance cost. If your new truck has Eberhard fittings, you can be pretty sure that it is a quality job all the way through.

Modern Eberhard body hardware meets every requirement of convenience, safety and durability, at moderate cost. For complete information and new reduced prices see your dealer, or write direct to

CLAMPTITE Universal Lock for right-hand or left hand, single or double doors, and end gates; Key-locking handles for heavier doors; Stream-lined Hinges; Panel-Body Locks.

EBERHARD MANUFACTURING CO.
Division of Eastern Malleable Iron Co.
CLEVELAND, OHIO

EBERHARD
AUTOMOTIVE HARDWARE
COMPLETE DESCRIPTIVE LITERATURE ON REQUEST

Inflation—61; *Carelessness of Drivers—24; Rapid Tread Wear on Tires—21; Wheel and Axle Alignment—16; Tread Cuts and Stone Bruises—14; Short on Tire Milage—9; Early Sidewall Failure—9; Overloading—8; Overheating—7; Fabric and Cord Breakage—4; Determining Proper Size—4; Matching of Dual Tires—4; Under-Inflation—4; Removing Glass, Nails, etc.—2; Shoulder Breaks—2; Keeping Tire Records—1; Blow-Outs and Flats—1; Dismounting and Mounting—1.

Under "Carelessness of Drivers" it should be noted that some of these answers included various of the following abuses: Not reporting flats; running on partly-inflated tires; running over glass, nails, sharp objects, etc.; running against curbs; running on flats; quick application of brakes; sliding tires when starting and stopping; etc.

Just in case anyone might think that only slow (or fast) types of operation were included in this survey, we next asked, "*How are MOST of your vehicles operated?*" The answers were: "Slow-Speed, City Work"—138; "High-Speed, Inter-City Work"—78; "Both"—53; No Answer—16. Although it doesn't look evenly divided, we'd say that the survey is fairly representative, as there are far more city fleets than inter-city ones, and the proportions as above seem very fair.

We always ask for a few remarks on our questionnaires. Generally we get plenty. Here are a few typical ones, picked at random and faithfully copied off the replies:

"Four-ply tires on new light trucks are practically worthless; some makes are worse than others; are riding qualities more important than service?"

"We keep our tires a little above recommended pressures, to allow for weekly drop; this gives us good mileage."

"We like the idea of 'life-saver' tubes, but think the price is too high."

"Biggest trouble we have with tires is to teach drivers to keep them inflated."

"We do not think it pays to have any major tire repairs made."

"Have found 8-ply tires to be far cheaper in long run, than 4 or 6-ply."

"Real demand for a concise tire record, showing actual wear and road-hazard loss."

"When puncture-proof tubes are used, sidewalls of tires seem to fail quicker."

"Engineering service is not usually obtainable from tire dealers."

"Too many fancy tread designs that usually mean nothing."

"Tire price situation is not too well stabilized."

"We find that tires will not stand up to rated capacity on gravel roads, and we have to use oversizes."

"Tire manufacturers should render better engineering service, to teach fleet operators to get most mileage from tires."

"We don't like the trend towards rib-type treads; need more traction."

"Find 'start and stop' tires ideal for city delivery work; more mileage."

"Find it satisfactory to buy on mileage basis; no headaches; little extra cost."

"Don't like to mix brands, on account of slight variation in size."

"Need more education in tire maintenance and load-carrying capacities."

"Increased mileage 25% by proper inspection, inflation and switching."

"Rubber in tires should conform to standard specifications; like steel in bearings. Should have minimum requirement of tensile strength; elasticity; resistance to heat; and resistance to deterioration."

"Treads should be heavier; especially on low-pressure passenger car tires."

"Most tires are O.K. today. Most failures can be traced to under-inflation, poor brake adjustment and overloading."

"Some tires are not properly marked as to inflation pressure in pounds."

"In our opinion, no manufacturer has developed a tire that is outstandingly superior to other brands. All makes show about the same record with us."

"Tendency to heat up, when punc-

ture-proof tubes are used."

"If the tire dealer was as interested in keeping his tires 'sold' as he is in selling them, he would find his customer turnover much less."

"Give us a good 'multi-stop' tire with less premium on the price."

"Most passenger cars and light trucks are under-tired."

"Would like less numbers on tire serials; use letters instead of numbers."

No doubt you are wondering about the size and type of concerns participating in this survey? The 285 fleets who answered are located in 41 states, Puerto Rico and Canada. They are classified in about 30 different industries—including truck, bus, tractor-trailer and taxicab fleets of all kinds. These fleets operate an average of 144 vehicles, each, or a combined total as follows: 26,008 trucks; 1,438 tractors; 2,193 trailers; 8,560 passenger-cars; 2,039 buses; 418 taxicabs; and 432 miscellaneous vehicles. . . . The grand total is 41,088 vehicles—add 'em up if you don't believe it.

So you see, folks, this survey is *quite* representative. We hope that you will participate in this monthly feature, in return for which you will get a private and personal copy of the confidential tabulation which we make. This contains all such information that we can't give here—such things as trade-names, etc.

This month's questionnaire promises to be unusually interesting, since it covers Engine Timing—something that *all* of us are interested in. If you feel that you'd like to get the confidential report which it will bring, just turn to page 51, tear out the page, fill in the answers to as many questions as you can (or as you care to) and send it back to us. Rest assured that everything is kept confidential, and that your name is *never* mentioned to anyone, or at any time. It's your cooperation that we need to make this thing a success. Thanks.

•

1939 Reo Trucks

(Continued from page 36)

has been increased. Reo engineers have also paid special attention to accessibility. The entire hood, including the front grille, lifts up in one piece, so that the engine is completely exposed for easy and quick servicing.

The new Reo cab, interchangeable on all models, is gracefully rounded and includes many details—attractive instrument panel, two dash compartments, durable interior trim, plenty of room, good vision and ventilation, and many other aspects of beauty and serviceability.

In order that your picture of the new Reo line may be complete, let us briefly review the five models, beginning with the smallest; here are the *standard* specifications, although anything else that you might want is "optional"—

Model 11—Gross rating of this model (chassis, body and payload) is 11,000 pounds. The 6-cylinder Reo Gold Crown engine in this job has bore and stroke of 3¼ x 4¼ inches; 212 cu. in. piston displacement; taxable horsepower is 25.25; maximum torque is 160 lb.-ft. at 1,000 r.p.m.; 7 main bearings 2⅝ inches in diameter; 89.68 sq. in. bearing area; downdraft carburetor; alloy steel exhaust valve-seat inserts. A 245 cu. in. engine is optional at slight extra cost. . . . Clutch is a 10-inch single-plate job. . . . Transmission is a 4-speed job, with helical countershaft drive. A 5-speed transmission, with over or underdrive, is optional at extra cost. . . . Drive is by balanced tubular shaft, with needle-bearing universal joints. . . . Rear axle is a spiral-bevel, full-floating job, with steel housing, straddle-mounted pinion. Ratios are 5.66-1, 6.2-1, 6.6-1. Hotchkiss drive is used. Double-reduction axles and 2-speed axles are available at extra cost. . . . Steering gear is of worm-and-roller type. . . . Brakes are internal-expanding hydraulic, with booster. Braking area is 264 sq. in. . . . Wheels are cast-steel, spoke-type, 20 x 5 inches. . . . Standard tire size is 6.00 x 20 front and rear, singles. Dual equipment and larger tires are available at extra cost. Tread is 65

● From the very earliest days of the industry, **Spicer** has maintained long and successful relations with all the leading manufacturers of passenger cars, trucks and buses. In fact, the list of **Spicer** customers would be a truly representative "Who's Who" of the dominating companies in automotive industry.

In some cases, relations between manufacturers and **Spicer** have lasted for more than thirty years. Such records could be maintained only through the quality of **Spicer** products, the efficiency of **Spicer** service.

We are confident that years from now, our service record will be even more impressive.

Spicer

Spicer Manufacturing Corporation • Toledo, Ohio

BROWN-LIPE CLUTCHES and TRANSMISSIONS · SALISBURY FRONT and REAR AXLES · SPICER UNIVERSAL JOINTS · PARISH FRAMES READING, PA.

DIRTY PARTS··CLEANED LIKE NEW!

Carburetors, fuel pumps and other automotive parts are quickly and completely cleaned with MAGNUS NO. 78. After a simple 30-minute soak in a COLD solution of it, they come out clean as when new.

Used COLD and mixed simply with equal parts of water, you are always ready to clean when you use MAGNUS NO. 78. There's no lost time waiting for tanks to heat up—no heating expense—no gasoline or kerosene.

In addition, MAGNUS NO. 78 is non-corrosive to metals—will not injure gaskets or packings.

A nearby Service Representative will gladly demonstrate MAGNUS NO. 78 in your own shop. There's no obligation. Write to have one call without delay.

FREE

48-page Automotive Cleaning Handbook. Goes thoroughly into all cleaning problems connected with truck operation and maintenance. Send for your copy TODAY.

MAGNUS CHEMICAL COMPANY

Manufacturers of Cleaning Materials, Industrial Soaps, Metallic Soaps, Sulfonated Oils, Emulsifying Agents and Metal Working Lubricants

36 South Avenue — Garwood, N. J.

MAGNUS CLEANERS

inches front and rear, the latter with duals. . . . Springs are, front 40 x 3 inches, rear 50 x 3 inches; helper springs available at extra cost. . . . Frame size is 8-13/16 x 2-29/32 x 5/32 inches.

Model 12—Gross rating of this model (chassis, body and payload) is 12,000 pounds. The 6-cylinder Reo Gold crown engine in this job has a bore and stroke of 3¼ x 4¼ inches; it appears to be the same engine used in the Model 11; a 245 cu. in. engine is optional at slight extra cost, as in the Model 11. . . . Clutch is an 11-inch single-plate job. . . . Transmission specifications are the same as in Model 11. . . . Drive is similar in design to that of Model 11. . . . Rear-axle is the same as in Model 11, with the same ratios. . . . Steering gear is of the worm-and-roller type. . . . The hydraulic brakes have an area of 264 sq. in. A booster is standard. . . . Cast steel, spoke-type wheels are 20 x 5 inches on this model. . . . Standard tire size is 6.00 x 20 front; rear tire size is 32 x 6—8-ply singles, with dual tire equipment optional at extra cost. . . . Tread and spring dimensions are given the same as in Model 11. . . . Frame dimensions are 8⅞ x 3 x 3/16 inches.

Model 14—Gross rating of this model (chassis, body and payload) is 14,000 pounds. The 6-cylinder Reo Gold Crown engine in this job has bore and stroke of 3½ x 4¼ inches; 245 cu. in. piston displacement; taxable horsepower is 29.4; maximum torque is 183 lb.-ft. at 1,000 r.p.m. All other specifications are the same as in the smaller engine previously described. A 288 cu. in. engine is optional in this model, at slight extra cost. . . . Clutch is an 11-inch, single-plate job. . . . Transmission specifications are similar to those mentioned for the smaller models—four or five-speed optional at different costs. . . . Drive is by balanced tubular shaft, with needle-bearing universal joints. . . . Rear axle is a spiral-bevel, full-floating job, with steel housing, straddle-mounted pinion. Ratios are 5.14-1, 5.66-1, and 6.67-1. Hotchkiss drive is used. Also available are 2-speed and double-reduction axles. . . . Steering gear is of the worm-and-roller type. . . . Internal expanding hydraulic brakes are used, with booster. Braking area is 328 sq. in. . . . Wheels are cast steel, spoke-type, 20 x 5 inches. . . . Tread, spring and frame specifications are the same as in the Model 12.

Model 16—Gross rating of this model (chassis, body and payload) is 16,000 pounds. The 6-cylinder Reo Gold Crown engine in this job has bore and stroke of 3½ x 5 inches; 288 cu. in. piston displacement; taxable horsepower is 29.4; maximum torque is 212 lb.-ft. at 950 r.p.m. All other specifications are the same as in the engines previously described. A 310 cu. in. engine is optional in this model, at slight extra cost. . . . Clutch is a 12-inch, single-plate job. . . . Transmission specifications are similar to those mentioned for the smaller models—four or five-speed optional at different costs. . . . Drive is by balanced tubular shaft, with needle-bearing universal joints. . . . Rear axle is a spiral-bevel, full-floating job, similar to the ones previously described, but having ratios of 6.16-1, 6.83-1, 7.4-1. Hotchkiss drive is used. Also available are 2-speed and double-reduction axles. . . . Steering gear is of the cam-and-lever type. . . . Brakes are of the full Bendix-Westinghouse air type, with 388 sq. in. of braking area. Hydraulic brakes with booster are optional. . . . Wheels are cast steel, spoke-type, 20 x 6 inches. . . . Standard tire size is 7.00 x 20 front; the same size in the rear, with dual equipment. . . . Spring specifications are similar to previously described models. . . . Frame dimensions are 9 x 3 x ¼ in.

Model 18—Gross rating of this model (chassis, body and payload) is 18,000 pounds. The 6-cylinder Reo Gold Crown engine in this job has bore and stroke of 3⅝ x 5 inches; 310 cu. in. piston displacement; taxable horsepower is 31.5; maximum torque is 288 lb.-ft. at 900 r.p.m. All other specifications are the same as in the other engines previously described. . . . Transmission specifications are similar, with four or five-speed jobs available. Rear axle is the same as in Model 16. . . . Cam-and-lever steering gear is used. . . . Brakes are full Bendix-Westinghouse air type, with 436 sq. in. of braking area. . . . Wheels are cast steel, spoke-type, 20 x 7 inches. . . . Tire size (standard) is 7.50 x 20, front and the same size (duals) rear. . . . Spring and frame dimensions are the same as those of the Model 16.

Literature is now ready, covering all of these standardized Reo units and truck models. . . . For your free copy address H. A. Flogaus, Chief Engineer, Reo Motor Car Company, Lansing, Mich. . . . We always appreciate it when you mention FLEET OWNER. . . . Often it speeds up the service, as it identifies the source of your inquiry. It also shows that you read our book, for which we are grateful.

•

Dodge Announces Diesel Prices

THE NEW Dodge 3-ton Diesel-powered truck (with Dodge-built engine) will include chasses ranging in wheelbase from 152 to 205 inches. Detroit delivered prices will range from $3,230 for the 152-inch wheelbase chassis, to $3,450 for the 205-inch wheelbase chassis, with cab, fully equipped. . . . Wheelbases available will be 152, 170, 180 and 205 inches. . . . See December issue, page 41, for complete details of the engine.

Private Carriers Ask Postponement of I.C.C.

PRIVATE motor truck owners have requested the Interstate Commerce Commission to postpone to February 15 the first of hearings in nine cities on the safety of motor truck operation, scheduled to begin in Washington, January 9. Finding that "good cause" was expressed, the ICC agreed to postpone the hearings until February 20, 1939.

In its petition filed last month, the newly-formed National Council of Private Motor Truck Owners pleaded the need of more time to gather adequate data required under the Commission's order of October 31.

The Council declares that it already represents owners of 200,000 motor trucks used by agriculture and industry, "who transport or distribute property by motor vehicle as an incident to, or in furtherance of their business, other than the business of transportation for hire." Numerous truck owners coming under the scope of the investigation, who are not members of the organization, will also benefit by the granting of more time for preparation of data for the hearings, the petition states.

The proceedings was instituted to determine whether there is need for Commission jurisdiction, from the standpoint of safety, over qualifications and hours of employes, and standards of equipment of private motor truck owners, under Section 204 of the Act, the principal purpose of which is to regulate the operation of common and contract carriers operating in interstate commerce.

●

I.C.C. Bars Use of Case-Hardened Glass

CASE-HARDENED glass may not be used in the windshield, door or window openings of any commercial vehicle purchased new and operated in interstate commerce. Nor may it be used for replacement of broken or shattered glass in commercial vehicles operating in interstate commerce. You must use laminated glass.

If you don't exactly understand the difference between the two, it's this: Laminated glass consists of two pieces of glass, generally plate, of approximately equal thickness, held together by plastic material of about 0.015 inch thickness so that the glass when assembled is about one-quarter inch thick.

Case-hardened glass, sometimes referred to as tempered glass, consists of a single piece that has been reheated to plasticity and then subjected to a chilling blast of air on both surfaces. It is much harder than either ordinary window glass or plate glass.

●

Motor Carrier Act Now in Fourth Year

WITH October 1 marking passage of three years since the Federal Motor Carrier Act became effective, official information from the Motor Carriers Bureau of the Interstate Commerce Commission shows what has been done and how much remains to be done before the measure can be deemed to be fully effective.

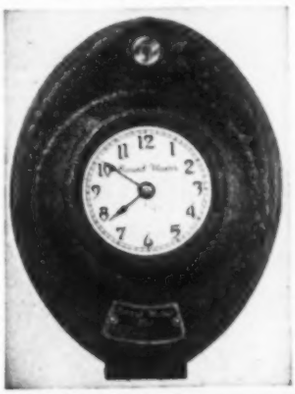
Some 91,540 motor carrier applications have been filed with the bureau, approximately half of which have been withdrawn, either voluntarily or because of failure to comply with official requests for additional information. More than 11,000 applications had not been decided as of July 1. More than 1,500 applications were awaiting review of field reports and approximately

This is No. 3 of a series of pertinent facts. The fourth will appear in the next issue.

3 is this true or false ?

"Every Truck Today is Operated at Lowest Cost"

You may feel that you have reduced your operating costs to the minimum and very possibly you have, insofar as usual methods will do it. But the experience of many other fleet operators has shown that without the accurate information on each truck's daily operation afforded by RECORD MASTER, the truck's operating costs are NOT their lowest. The statement is FALSE! RECORD MASTER rides each truck during every minute of its working day. AUTOMATICALLY it records every stop and movement of the truck on a chart that gives you a visible record. From this chart, you can check against avoidable delays, delays caused by waiting for loads, etc., irregularities in routes and have an accurate record for the wages and hours act.



RECORD MASTER

is quickly and easily installed in the truck with two screws or bolts and has no connection with the motor or electrical system. It is locked to prevent tampering. There are three models—12 hour, 24 hour and 7 day units. The chart is a permanent record of EVERY MINUTE while it was on the truck. When you can SEE facts, you can deal with them. Let us tell you the complete story of the RECORD MASTER and the many advantages it offers you for cutting down your operating costs.

WRITE FOR FREE FOLDER

A request on your letterhead will bring you immediately our illustrated folder giving all the details about this important unit. Write for it TODAY.

HERCULES AUTOMOTIVE SALES CORP.
THORPE BUILDING MINNEAPOLIS, MINN.

"The Brake People"
BRAKE LINING · BRAKE SHOES · BRAKE PARTS

MILEY

SPECIALIZING in supplying automotive brake servicing materials, the L. J. Miley Co., keeps well in advance of other manufacturers. (In 1930) Ebonite the first Semi-molded lining. (1932) BLACK GOLD—the first metal base lining. (1935) Replacement Brake Shoes for 85% of the cars and trucks. (1938) dependable Hydraulic Brake Parts. Write for copy of the MILEY brake instruction chart.

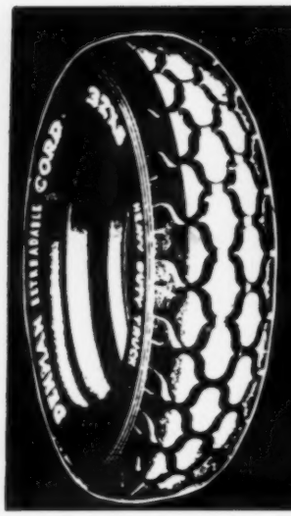
GOOD BRAKE LINING
L. J. MILEY CO.
CHICAGO . . . U. S. A.

1466 S. MICHIGAN AVE., CHICAGO, U. S. A.

OPTIONAL EQUIPMENT ON

Mack

MOTOR TRUCKS



DENMAN

CUSTOM

UNCONDITIONALLY GUARANTEED FOR SUPERIOR SERVICE

REPAIR CROSS-CHAINS INSTANTLY

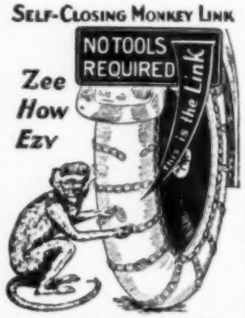
PRICES REDUCED 40%

WHEN a cross-chain breaks, use the famous MONKEY-LINKS to make the repair. . . . All sizes now 40% lower than last season. . . . No tools required. . . . Driver makes the repair right on the road.

FREE SAMPLES to fleets on request. . . . Tell us the sizes of chains used and the number of trucks in your fleet. . . . We will send the samples at once; no obligation.

At All Reputable Jobbers

SELF-CLOSING MONKEY LINK



Trade Mark Reg. U. S. Pat. Office
Pat. No. 1,438,560

FLOWER CITY SPECIALTY CO. ROCHESTER N. Y.

5,600 were being held up by protests or exceptions.

Of 91,540 applications filed, 80,854 were under the "grandfather clause" and 5,374 were for new operations and extensions. A total of 5,312 "grandfather clause" applications were filed after the statutory time limit.

More than 79,000 field investigations have been completed; 72,277 orders issued on "grandfather clauses" applications; 4,595 public hearings have been held on applications for operating authority and 386 applications acted upon without hearings.

A total of 190,912 metal identification plates have been issued. Inasmuch as these plates are interchangeable under certain circumstances, it is estimated that there are approximately 250,000 vehicles operating under authority of the Commission.

More than 40,000 insurance policies, 831 surety bonds and other types of securities have been filed since the Commission insurance regulations became effective.

GERSTENSLAGER BODIES *pfd.*

because of their

- SUPERIOR CONSTRUCTION
- GREATER STRENGTH
- LIGHTER WEIGHT
- LONGER LIFE
- BETTER APPEARANCE

Make inquiry regarding any type of closed body.

THE GERSTENSLAGER CO.

102-150 E. BOWMAN STREET
WOOSTER, OHIO

Established 1860

These Products Are SAFE

WRITE DO-RAY LAMP COMPANY
1458 S. Michigan Ave.
CHICAGO

CERTIFIED SAFETY LIGHTING AND REFLECTING EQUIPMENT

Gunk CLEANS CLEAN

DEGREASER

COLD PROCESS
GENERAL PURPOSE
GARAGE AND CHASSIS
GREASE REMOVER

Gunk CLEANS CLEAN

Not only dissolves grease and oil but emulsifies it as well
Your wholesale jobber has GUNK CONCENTRATE or can pick it up for you—ASK HIM!
THE CURRAN CORP., BOSTON OR WEST COAST: 445 TURK ST., SAN FRANCISCO, CALIFORNIA

DOUBLE-LIFE TRUCK TIRES

BUILT BY HAND

SPECIALLY MADE TO BE RECAPPED OR RETREADED one or more times

WILL POSITIVELY SPREAD TIRE DOLLARS over more miles

DENMAN TIRE & RUBBER CO., WARREN, OHIO

Aluminum Story in New Films

TWO recent additions to the film library of over 4,000 reels maintained by the Bureau of Mines of the Department of the Interior are *"Aluminum: Mine to Metal" and "Aluminum Fabricating Processes,"* each two reels in length and available in 16 or 35 mm. silent films.

"Aluminum: Mine to Metal" shows the sources and mining of bauxite, the ore of aluminum; the operations of converting bauxite into alumina, and the alumina into aluminum by the Hall electrolytic process. Animated drawings illustrate the conversion of alumina into metallic aluminum.

"Aluminum Fabricating Processes" shows how the metal is worked and shaped into various commercial forms, such as sheet, foil, rod, structural shapes, cable, castings, and other products. By animated drawings, the hydraulic and impact extrusion processes are explained.

Copies of these films are available for loan to schools, clubs, churches, fleet operators, and other interested groups. No charge is made for the films, but transportation charges are to be paid by the borrower. Address requests to the Bureau of Mines Experiment Station, 4800 Forbes Street, Pittsburgh, Penna.

Be Sure to Specify

MIDLAND

(Christensen)

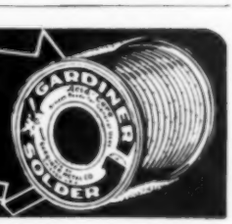
POWER BRAKE EQUIPMENT

See your Midland Distributor or write for new 12 page booklet.

THE MIDLAND STEEL PRODUCTS CO.

10609 Madison Ave. • Cleveland, Ohio

OUTSTANDING QUALITY



● High tensile strength, quick-acting flux and uniform high quality combine to make possible the faster, cleaner work which has given Gardiner Flux-Filled Solders their high standing in the automotive industry. Modern production methods, exclusive with Gardiner, permit prices lower than you pay for even ordinary solder. Line includes Solid Wire, Bar and Body Solders . . . also Permanent Lining Babbitt Metal.

Gardiner METAL CO.

4810 SOUTH CAMPBELL AVENUE, CHICAGO, ILL.

SHO-TURN *Right and Left Turn* **DIRECTION SIGNAL**

Simple in construction and operation—so that neither signals or driver can go wrong. Once installed they continue on the job without further care. Special light transmission lens glows evenly in daytime as well as dark. Semi-automatic switch . . . instantaneous action . . . turns off as soon as turn is completed.

For Fair or Adverse Weather visible in fog, rain, snow, sleet, dust.

Six types in numerous combinations.

TESTED APPROVED

MODEL No. 565-A

Members by Invitation . . . Rice Leaders of the World Association

The K-D Lamp Co.

CINCINNATI, O.

WESCO—
Chains *a complete line . . .*

Wesco chains are rugged and dependable . . . a long-wearing line of case-hardened, heat treated chains for cars, trucks and buses . . . on and off in a jiffy with the patented Wesco lock. Here is a line that will pay any fleet owner dividends and give complete satisfaction.

Write for circulars TODAY

WESTERN CHAIN PRODUCTS COMPANY
1815 Belmont Ave., Chicago

I CUT MY TIRE COSTS PLENTY WITH GOODRICH SILVERTOWNS

Truck owners find that truck tire costs hit rock bottom when they switch to Goodrich Silvertowns. Here's why: Silvertowns have a new invention—Triple Protection—built into the sidewall. It positively checks 80% of all premature failures. It cuts down on tire delays—adds mileage. See a Goodrich dealer for prices.

NO PREMIUM PRICE

Goodrich *Triple Protected* Silvertowns
FOR TRUCKS AND BUSES

Thrifty Comfort in
INDIANAPOLIS
INDIANA

LORRAINE HOTEL

Deluxe rooms with inner-spring mattresses; bed lamps, floor lamps and all wool blankets. Facing State Capitol on US 40 & 31. A block from center of town.

DELUXE ROOMS WITH BATH FROM $1.50 SINGLE $2.50 DOUBLE OTHER ROOMS FROM $1.

CORNER CAPITOL AVE. AND WASHINGTON ST.

CORNER ILLINOIS & OHIO STS

BREVORT HOTEL

All deluxe rooms have venetian blinds, inner-spring mattresses; bed lamps, reading lamps comfortable furnishings. One block west of Post Office - a block from traction, bus depot.

W. B. & H. J. SMITH
PROPRIETORS

Survey Uncovers New Anti-Freeze Facts

A COMPLETE upset of certain widely-accepted ideas about the use of anti-freeze in automobile cooling systems has resulted from seven years of research by E. I. du Pont de Nemours & Company.

This research was conducted for the purpose of determining the type of anti-freeze material best suited for the needs of the modern automobile cooling system. It also revealed important facts in relation to the use of a chemical solution to assure radiator protection in winter and in summer. The high spots of this research revealed:

(1). That a methanol anti-freeze, although low-boiling, does not soon evaporate from the radiator, leaving only the water behind and removing the necessary protection, as many persons believed.

(2). That mechanical losses of liquid from the radiator, as contrasted with evaporation losses, have proved to be much more important than has hitherto been supposed.

(3). That losses of liquid are neither straight anti-freeze nor straight water, but anti-freeze and water in very nearly the same proportion in which they were originally present in the radiator.

(4). That losses of liquid should be replaced with a solution of the same concentration as was originally present in the cooling system.

(5). That a rust and corrosion inhibitor could be incorporated with the anti-freeze without in any way impairing its high cooling efficiency.

(6). That an anti-freeze containing a rust and corrosion inhibitor could be used in summer as well as in winter so as to maintain at all seasons a free circulation in the cooling system.

During this period of research, practical road-tests totalling 400 "car years" and more than 1,000,000 miles of operation were regularly checked for results and subjected to careful investigation. In these investigations the valuable properties of methanol as an anti-freeze and its improvement of the heat transfer properties of water were noted.

A study was then made of materials for combating rust and corrosion. After testing numerous rust-inhibitors on representative water supplies from all over the country, a combination inhibitor was chosen which could be incorporated with methanol without affecting its anti-freeze properties. The combination of methanol and rust-inhibitor was given an extensive practical road-test during the summer of 1936 in fifteen selected areas throughout the country.

●

New Massachusetts Flare Law

A NEW flare law recently enacted in Massachusetts requires that all commercial vehicles with a gross weight of over 5,000 pounds must carry three flares while operating over any highway which is not illuminated at night.

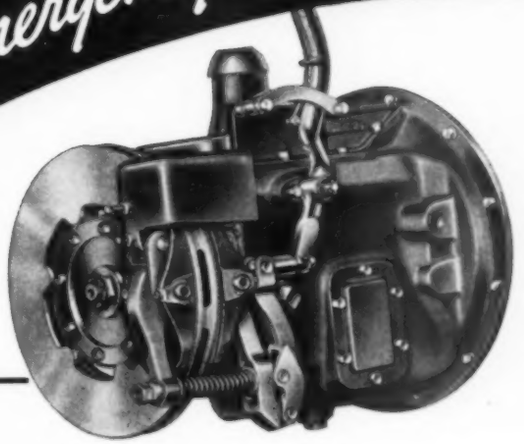
When the vehicle must be stopped on the travelled portion of the highway, the flares must be set out as follows: one approximately 100 feet in front of, one approximately 100 feet in the rear of, and one alongside of the vehicle, unless the vehicle is so located that it seems desirable to have the flares placed at a greater distance in front or in the rear of the vehicle. Tank trucks must use electric flares.

A maximum fine of $25, with a fifteen day suspension of the vehicle's registration is the penalty for violation.

ADVERTISERS' INDEX:

Aluminum Co. of America	—
American Brakeblok Corp.	15
American Cable Division of American Chain & Cable Co.	65
American Chain Division of American Chain & Cable Co.	49
Bendix Products Corp.	23
Bendix-Westinghouse Automotive Air Brake Co.	13
Bowser & Co., S. F.	—
Brunner Mfg. Co.	37
Champion Spark Plug Co.	3
Chevrolet Motor Co.	17
Cummins Engine Co.	26 & 27
Curran Corp.	62
DeLuxe Products Co.	31
Denman Tire & Rubber Co.	62 & 63
Dodge Div. of Chrysler Corp	35
Donaldson Co.	25
Do-Ray Lamp Co.	62
Eberhard Mfg. Co.	58
Electric Storage Battery Co.	41
Ethyl Gasoline Corp.	47
Exide Batteries	41
Flower City Specialty Co.	62
Ford Motor Co.	11
Fruehauf Trailer Co.	53
Gardiner Metal Co.	63
General Motors Corp.-Diesel Engine Div.	32 & 33
Gerstenslager Co.	62
Goodrich Co., B. F.	64
Hall Mfg. Co.	7
Hein-Werner Motor Parts Corp.	45
Hercules Automotive Sales Corp.	61
Hoof Products Co.	57
Ingersoll-Rand Co.	—
International Harvester Co.	8
K-D Lamp Co.	63
Lorraine Hotel	64
Mack Trucks, Inc.	66
Magnus Chemical Co.	60
McQuay-Norris Mfg. Co.	—
Midland Steel Products Co.	63
Miley Co., L. J.	61
Oakite Products Inc.	6
Packard Electric Division	39
Reo Motor Car Co.	Front Cover
Sealed Power Corp.	4th Cover
Seiberling Rubber Co.	—
Service Recorder Co.	56
Sherwin-Williams Co.	3rd Cover
Spicer Mfg. Co.	59
Standard Oil Co. of Indiana	Inside Front Cover
Sterling Cable Corp.	—
Studebaker Corp.	29
Teleoptic Co.	—
Texas Company	4 & 5
Timken-Detroit Axle Co.	—
Timken Roller Bearing Co.	21
Tyson Roller Bearing Co.	43
United States Steel Corp.	—
Vellumoid Co.	—
Western Chain Products Co.	64
Zenith Carburetor Co.	—

TRU·STOP Emergency BRAKES



Positive and smooth stops at any speed —with any load

● The TRU-STOP Emergency Brake stops any vehicle in a short distance—no matter what load or speed. This quick stop is made smoothly—without squealing, chattering or grabbing.

Thousands of users vouch for the economy of TRU-STOP Brakes. The ample lining surfaces wear evenly. Ventilated discs prevent overheating. It is an easy job for any mechanic to install the brakes—and for any driver to adjust and reline them.

BUY ACCO QUALITY *in automotive products like Tru-Stop Emergency Brakes, Weed American Bar-Reinforced Tire Chains, Tru-Lay Brake Controls, Tru-Level Oil Controller and Manley Garage Equipment.*

AMERICAN CABLE DIVISION
AUTOMOTIVE DIVISION, DETROIT, MICHIGAN
Manufacturers of the famous Weed American Bar-Reinforced Tire Chains

AMERICAN CHAIN & CABLE COMPANY, Inc.
In Business for Your Safety

TRU • LEVEL OIL CONTROLLER

After exhaustive tests the Tru-Level Oil Controller is being adopted by car and truck manufacturers in production and is also being ordered by fleet owners for installation. It protects equipment and saves money by maintaining a proper level of oil in crank case at all times. It can't go wrong. Manufactured by American Chain & Cable Company, Inc., 12-252 General Motors Building, Detroit, Michigan.

MACK PRESENTS

DIESEL

power

CLIMAX to eight years of intensive research on Diesel power, Mack presents a full range of Diesel trucks.

Here, Diesel is developed into the most economical truck power available today —slashing as much as one third from former fuel costs. Coupled with famous Mack stamina and dependability, it provides the biggest truck value ever offered.

Eight distinct Diesel engines give Mack the most complete line of Diesel-powered trucks in America . . . all embodying the patented Lanova principle of "controlled combustion." You owe it to your business to find out about these sensational new Mack Diesels!

* * *

MACK TRUCKS, INC. • NEW YORK, N.Y.

For all kinds of hauling . . . **it's a** Mack

MODERNIZE WITH COLOR

WHERE TO USE IT ... HOW TO USE IT ... THAT'S THE JOB OF

SHERWIN-WILLIAMS TRANSPORTATION COLOR SERVICE

It takes more than color to get that "plus" return from your fleet. It takes the right colors properly used. Color can streamline your equipment—new or old—to give it the modern appearance that makes a favorable impression. It can identify your fleet, your company and your products. It can increase the visibility of your trucks—day or nite—increasing the safety factor. Above all, color can attract the desired attention to your name—make each unit serve as a powerful and valuable travelling advertisement. Many operators report the added business from smartly and effectively colored trucks has converted paint maintenance costs into a real dividend paying proposition.

The S-W Transportation Color Service and the S-W Finishing Engineer can tell you which colors and finishes will do the most efficient, lasting and economical job for you. They will prepare actual color elevations. Look into these important services now. No cost or obligation. Write The Sherwin-Williams Co., Cleveland, Ohio and principal cities.

SHERWIN-WILLIAMS "OK" AUTOMOTIVE FINISHES

GRANOSEAL SURFACE

exclusive with

SEALED POWER RINGS

prevents Ring and Cylinder Wall Scuffing

SO effective is Granoseal in preventing metal to metal contact that America's leading car and truck manufacturers now specify the Granoseal process on rings, tappets, camshafts and cam gears. Engineers agree it is superior to all other methods for this purpose.

Only Sealed Power Rings have Granoseal Surface. It is one more reason why fleet owners prefer these great rings.

Remember: For that in-between ring change—when you want to get 40,000 or 50,000 miles before reboring, use Sealed Power Sta-Tites with Granoseal Surface *always*.

SEALED POWER CORPORATION

Muskegon, Michigan • Canadian Factory: Walkerville, Ont.

Pistons, Pins, Expanders, Valves and Cylinder Sleeves

SEALED POWER PISTON RINGS

SEALED POWER PISTON RINGS

BEST IN NEW CARS! BEST IN OLD CARS!